

# INTERIM RECORD OF DECISION

SAN GABRIEL VALLEY SUPERFUND SITE  
SOUTH EL MONTE OPERABLE UNIT  
LOS ANGELES COUNTY, CALIFORNIA

September 2000

United States Environmental Protection Agency  
Region IX - San Francisco, California

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**Part I**  
**Declaration**

# **Part I - Declaration**

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## **1.1 Site Name and Location**

This Interim Record of Decision (ROD) addresses groundwater contamination at the South El Monte Operable Unit (South El Monte OU) located within the San Gabriel Valley Superfund Site Area 1 in Los Angeles County, California. The San Gabriel Valley Superfund Site Area 1 has a CERCLIS ID CAD980677355.

## **1.2 Statement of Basis and Purpose**

This ROD presents the selected interim remedial action for the South El Monte OU of the San Gabriel Valley Superfund Site in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. §§ 9601 et. seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) (collectively referred to herein as CERCLA) and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300 (NCP). This decision is based on the Administrative Record for this site.

The State of California, acting through the California Department of Toxic Substances Control (DTSC) and the Los Angeles Regional Water Quality Control Board (LARWQCB), concur with the selected remedy.

## **1.3 Assessment of the Site**

The U.S. Environmental Protection Agency (EPA) has determined that volatile organic compounds (VOCs) have been released into groundwater within the South El Monte OU, and that a substantial threat of release to groundwater still exists. The response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

## **1.4 Description of the Selected Remedy**

This interim action ROD addresses groundwater contaminated with VOCs. EPA's objective is to protect human health and the environment. The selected remedy is containment of groundwater contaminated with VOCs in the intermediate zone in the western portion of the South El Monte OU. This remedy includes performance criteria that will require extraction and treatment of contaminated groundwater at certain locations along the downgradient edge of the contamination, and other locations, as necessary, and will require continued monitoring and evaluation at other locations. The treated groundwater is expected to be delivered to local water purveyors, although other discharge options may be evaluated. In addition, this remedy includes monitoring in the shallow and intermediate groundwater zones in the South El Monte OU. Although it is not a component of the South El Monte OU interim remedy, EPA's planned remedy in the adjacent downgradient Whittier Narrows OU will play an important role in containing South El Monte OU contamination and meeting EPA's South El Monte OU remedial action objectives. The South El Monte OU interim remedy is the seventh interim remedial action that EPA selected to contain contaminated groundwater within the San Gabriel Valley Superfund Sites.

## 1.5 Statutory Determinations

The selected interim action remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the interim remedial action, is cost effective, and utilizes permanent solutions to the maximum extent practicable. This remedy also satisfies the statutory preference for treatment as a principal element of the remedy (i.e., reduces the toxicity, mobility, or volume of materials through treatment).

Because this interim remedy will result in hazardous substances remaining onsite above levels that allow for unlimited use or unrestricted exposure, a statutory review will be conducted within five years after initiation of the interim remedial action to ensure that the remedy is, or will be protective of human health and the environment.

## 1.6 ROD Data Certification Checklist

The following information is presented in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record file for this site.

- Chemicals of concern (COCs) and their respective concentrations
- Baseline risk represented by the COCs
- Current and future groundwater use assumptions used in the baseline risk assessment and ROD
- Groundwater use that will be available at the site as a result of the selected remedy
- Estimated capital, operation and maintenance (O&M), and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected
- Decisive factors that led to selecting the remedy (i.e., how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria)

Cleanup levels in the aquifer are not included in this interim action ROD because this is an interim action remedy focused on groundwater containment.

Keith A. Takata  
Keith A. Takata  
Director of Superfund Division  
U.S. Environmental Protection Agency, Region IX

9-29-00  
Date

## **Part II**

### **Decision Summary**

# Part II - Decision Summary

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This Decision Summary portion of the interim Record of Decision (ROD) summarizes the information and approaches that the U.S. Environmental Protection Agency (EPA) used to reach a decision on this remedy. It also establishes the remedy that EPA has selected.

## 1 Site Name, Location and Description

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This ROD presents the selected remedial action to address groundwater contamination at the South El Monte Operable Unit (South El Monte OU) located within the San Gabriel Valley Superfund Site Area 1 in Los Angeles County, California.

### 1.1 Site Description

The South El Monte OU is part of the San Gabriel Valley Superfund Site Area 1 (CAD980677355), located in eastern Los Angeles County, California (Figure 1). The term "Operable Unit" (OU) is used to define a discrete action that is an incremental step toward a comprehensive site remedy. Operable units may address certain geographic areas, specific site problems, initial phases of a remedy, or a set of actions over time. In addition to the South El Monte OU, EPA has identified seven other OUs at the San Gabriel Valley Superfund Site. These are the Alhambra OU, Baldwin Park OU, El Monte OU, Puente Valley OU, Richwood OU, Suburban OU, and Whittier Narrows OU. EPA is the lead regulatory agency overseeing the cleanup at the San Gabriel Valley Superfund Site.

The San Gabriel Valley encompasses a basin that is approximately 170 square miles. Groundwater in the San Gabriel Basin is the primary drinking water source for more than one million people. Regional groundwater contamination by volatile organic compounds (VOCs) prompted EPA to place the San Gabriel Valley on the National Priorities List (NPL) in 1984. This list identifies the highest priority hazardous waste sites in the United States for investigation and cleanup.

The South El Monte OU covers approximately eight square miles in the south central portion of the San Gabriel Basin. The South El Monte OU is generally bounded by the San Bernardino Freeway (I-10) on the north, the Pomona Freeway (Highway 60) on the south, the San Gabriel River Freeway (I-605) on the east, and San Gabriel Boulevard on the west. The western boundary of the OU has moved from Walnut Grove Avenue, as described in the Feasibility Study and Proposed Plan, to San Gabriel Boulevard because EPA was made aware that groundwater contamination had migrated further west in the vicinity of San Gabriel Boulevard. Most of the South El Monte OU has been developed, except the large area of land within the Whittier Narrows flood control basin. The South El Monte OU encompasses the entire city of South El Monte and parts of the cities of El Monte and Rosemead. Most of the OU area is zoned for residential use, particularly the eastern and western portions, and is likely to remain residential. Industrial activity, primarily small to medium-sized businesses, occurs across the central portion of the South El Monte OU.

An underground feature in the South El Monte OU called a groundwater flow divide controls the direction that groundwater and contaminants in groundwater can move and also affects the development and evaluation of cleanup alternatives for the OU. The flow divide generally occurs near Rush Street in the central portion of the OU (see Figures 2 and 3). Groundwater flow in the shallow zone (generally less than 100 feet below ground surface (bgs)) is principally to the south and southwest towards Whittier

Narrows. Groundwater flow in the intermediate zone (generally between 100 and 400 feet bgs) in the vicinity north of Rush Street is towards the west. South of Rush Street intermediate zone flow is generally south/southwest towards Whittier Narrows.

VOCs are the primary organic contaminants found above state and federal drinking water standards (maximum contaminant levels or MCLs) in South El Monte OU groundwater. The VOCs tetrachloroethene (PCE) and trichloroethene (TCE) are the primary contaminants of concern (COCs). PCE and TCE are the VOCs that are detected most often and at the highest concentrations in groundwater, although other VOCs, including, 1,1-dichloroethane (1,1-DCA), cis-1,2-dichloroethene (cis-1,2-DCE), and 1,1-dichloroethene (1,1-DCE) have also been detected above drinking water standards in the South El Monte OU.

In general, VOC concentrations are highest in the shallow groundwater near industrial facility source areas where releases have occurred. EPA has not yet identified any specific "principal threat wastes," such as non-aqueous phase liquids (NAPLs) in the industrial source areas within the South El Monte OU. VOCs have also spread downward into the intermediate zone beneath the shallow zone, then migrated towards drinking water production wells located to the west and to the south in Whittier Narrows. Both of the impacted aquifer zones in the South El Monte OU (shallow and intermediate) are considered to be drinking water sources by the State of California and the intermediate zone is currently being used to supply drinking water. Several drinking water wells in the South El Monte OU have already been impacted by VOC contamination. These wells had to be shut down or equipped with wellhead treatment to reduce contaminant levels to drinking water standards.

In addition to the drinking water well impacts, contamination from the South El Monte OU has migrated to the south into the Whittier Narrows OU, threatening drinking water sources in the Central Basin south of the San Gabriel Basin. The downgradient groundwater impacts have resulted in EPA taking action to control contaminant migration in the Whittier Narrows OU. EPA's actions in Whittier Narrows will limit any further migration of contaminated groundwater into the Central Basin. Because EPA has already selected a remedial action for the downgradient Whittier Narrows OU, the selected interim remedial action for the South El Monte OU does not address the southerly migration of contamination in the shallow and intermediate zones. Figures 2 and 3 show VOC concentrations in shallow and intermediate groundwater zones as of 1999. The LARWQCB, working under a Cooperative Agreement with EPA, oversees site-specific investigations at individual industrial facilities where releases have occurred. The LARWQCB has directed individual facilities in the South El Monte OU to cleanup soil and shallow groundwater where elevated concentrations of contaminants were identified beneath the facility. These focused actions are intended to address the more highly-contaminated source areas, while EPA's actions address the widespread regional groundwater contamination.

# **2 Site History and Enforcement Activities**

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## **2.1 Site History**

The San Gabriel Valley has been the subject of environmental investigation since 1979 when groundwater contaminated with VOCs was first identified. In May 1984, four broad areas of contamination within the basin were listed as San Gabriel Areas 1 through 4 on EPA's NPL. EPA subsequently divided the basin into eight operable units (OUs) to provide a means of describing hydrogeology and contaminant distribution, and planning remedial activities in the basin. The source of groundwater contamination in the basin is from industrial facilities.

In 1986, data were compiled and reviewed to develop a preliminary conceptual hydrogeologic model of the San Gabriel Valley, as described in the Supplemental Sampling Program (SSP) Report (EPA, 1986). The results of the SSP investigations provided much of the basis for planning the remedial investigations that have been performed in the San Gabriel Valley since 1986. The Interim San Gabriel Basin Remedial Investigation Report (EPA, 1992a) describes these investigations and incorporates their results into an integrated discussion of EPA's understanding of hydrogeologic conditions in the basin.

EPA issued a draft Statement of Work (SOW) for a remedial investigation and feasibility study (RI/FS) to address groundwater contamination in the South El Monte OU. On July 25, 1995, EPA entered into an Administrative Consent Order for the South El Monte OU RI/FS. The group of PRPs that implemented the South El Monte OU RI/FS was known as the South El Monte OU Participants.

Sources of VOC contamination in the South El Monte OU include industrial facilities engaged in the manufacture of aerospace precision machines, aircraft fittings, pharmaceutical products and injectable drugs, chemicals, furniture, salsa, paint, jewelry, machine parts, cosmetic and dental composites, bathroom hardware, aluminum containers, precision sheet metals, electrical connectors, hand tools, and compressors; hazardous waste liquid storage and handling; drum reconditioning and recycling; petroleum storage and distribution; plastic molding; and battery recycling.

## **2.2 Remedial Investigation Activities**

EPA developed the RI/FS process for conducting environmental investigations under Superfund. The RI/FS approach is the methodology that the Superfund program has established for characterizing the nature and extent of risks posed by uncontrolled hazardous waste sites to evaluate potential remedial options. The RI serves as a mechanism to collect data for site characterization. The FS serves as the mechanism for development, screening, and evaluation of potential remedial alternatives. As stated in the Statement of Work, the RI/FS was designed to meet the following goals:

- Assess aquifer characteristics and characterize the vertical and lateral distribution of concentrations of VOCs in groundwater in the South El Monte OU area to support a focused FS and the selection of one or more interim actions for the South El Monte OU area.
- Develop and analyze alternatives for appropriate interim remedial actions to control the vertical and horizontal migration of groundwater with relatively higher concentrations of VOCs to areas in the South El Monte OU with relatively lower concentrations of VOCs.

An RI program was conducted for the South El Monte OU during 1996 and 1997. The RI field program consisted of evaluation of inactive production wells, installation of multi-port monitoring wells completed

in the shallow and intermediate zones, groundwater quality and level monitoring. The final RI Report was submitted to EPA in August 1998.

An FS was performed for the South El Monte OU in 1998 and 1999. The FS identified remedial action objectives, assembled remedial action alternatives, and provided an evaluation of the remedial action alternatives using the nine Superfund evaluation criteria established by EPA. The final FS Report was submitted to EPA in April 1999.

## 2.3 Enforcement Activities

EPA began its enforcement efforts in the South El Monte OU in 1985 by searching historical federal, state, and local records for evidence of chemical usage, handling, and disposal in the South El Monte OU area. At approximately the same time, the RWQCB initiated its Well Investigation Program (WIP) to identify sources of groundwater contamination. In 1989, EPA entered into a cooperative agreement with the RWQCB to expand the WIP program, to assist EPA in determining the nature and extent of the sources of groundwater contamination in the San Gabriel Valley, and to identify responsible parties. The RWQCB directly oversees facility-specific investigations in the South El Monte OU area; EPA helps fund these activities and, when necessary, uses its enforcement authority to obtain information and ensure that facility investigations are promptly completed.

As of December 1999, the RWQCB has sent chemical use questionnaires to approximately 1,300 facilities in the South El Monte OU area; inspected approximately 1,000 of these facilities; and directed approximately 286 facilities to perform soil, soil gas, and/or groundwater investigations. EPA has concurrently used its authority under Section 104(e) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to request information from more than 100 current and former owners and operators in the South El Monte OU. From these investigations, EPA has, to date, identified 43 facilities as sources of groundwater contamination in the South El Monte OU. EPA is continuing to gather data on facilities in the South El Monte OU and may identify additional facilities as sources of groundwater contamination after issuance of this ROD. The RWQCB has issued approximately 15 enforcement orders (Corrective Action Order [CAO], Administrative Civil Liability [ACL], etc.) to facilities that failed to timely comply with facility-specific investigation and/or cleanup activities required by the RWQCB.

In 1990 and 1991, EPA sent General Notice of Liability letters to representatives of 93 facilities in the South El Monte OU. In February 1994, EPA issued an Unilateral Administrative Order requiring one PRP to conduct a remedial investigation at its facility. On August 15, 1995, EPA sent Notification Letters to 49 potentially responsible parties (PRPs), representing 42 facilities, requesting that these parties participate in the South El Monte OU Interim RI/FS. Subsequently, EPA sent Notification Letters to two additional PRPs. Thirty of these notified PRPs, and three others that did not receive the notices, formed the South El Monte Participants that conducted the Interim RI/FS. The South El Monte OU Participants completed the RI/FS in April 1999.

Since 1995, EPA and the RWQCB have continued to investigate potential sources of contamination and expect to notify additional entities that they have been identified as PRPs. EPA is now in the process of identifying a final group of PRPs for the South El Monte OU. EPA anticipates issuing Special Notice letters to the South El Monte OU PRPs after the ROD is issued.

EPA and the RWQCB have undertaken enforcement activities elsewhere in the San Gabriel Valley, including facility investigations, issuance of CERCLA section 104(e) requests for information, issuance of General and Special Notice letters, and filing of cost recovery litigation. PRPs in the Puente Valley

and El Monte OUs previously entered into Administrative Consent Orders to perform the RI/FS activities for their respective OUs. EPA also issued a Unilateral Administrative Order to two parties in the Puente Valley OU and one party in the El Monte OU. In the Baldwin Park OU, EPA issued a ROD in March 1993, and in May 1997 sent Special Notice letters to 19 PRPs seeking performance of the remedial design and remedial action (RD/RA). Following the discovery of perchlorate contamination and lengthy negotiations, in July 2000, EPA issued Unilateral Administrative Orders to the 19 PRPs requiring implementation of the RD/RA.

### 3 Community Participation

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The Proposed Plan for this remedy, in the form of a fact sheet, was distributed to the parties on EPA's mailing list for the South El Monte OU in September 1999. The Proposed Plan, together with the Final South El Monte OU RI (Geosystems Consultants, Inc., 1998) and FS (Geosystems Consultants, Inc., 1999) reports and other pertinent documents, were also included in the Administrative Record file available at EPA's Superfund Records Center at EPA's Regional Office in San Francisco, and locally at two information repositories: the West Covina Library and the Rosemead Library. The Administrative Record for the South El Monte OU was placed in CD-ROM format in each repository.

In addition, EPA held a public meeting to present the Proposed Plan and EPA's preferred alternative on October 27, 1999, at the South El Monte High School in South El Monte, California. At this meeting, EPA answered questions and accepted oral comments pertaining to the South El Monte OU and the preferred alternative. A transcript of this meeting is available at the EPA's Superfund Records Center and at the two information repositories.

Notice of EPA's public meeting, availability of the Proposed Plan, and the announcement of a 60-day public comment period was published in the San Gabriel Valley Daily Tribune on September 30, 1999.

The public comment period ran from September 30 to November 29, 1999. EPA received numerous sets of written comments during the public comment period. These comments and the substantive oral comments are addressed in the Responsiveness Summary, included as Part III of this ROD.

## 4 Scope and Role of Operable Unit

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There are four areas of groundwater contamination in the San Gabriel Basin aquifer listed on the NPL as San Gabriel Valley Areas 1 through 4. Groundwater contamination in the San Gabriel Valley extends over very large areas (approximately 30 square miles). In the valley, there are a number of different areas of contamination with distinct conditions and contaminant sources. To facilitate implementation of remedial actions, EPA has divided the site into eight different OUs (Figure 1):

- Alhambra OU – RI/FS underway
- Baldwin Park OU – Interim ROD signed, EPA has ordered the PRPs to implement remedy
- El Monte OU – Interim ROD signed, EPA is negotiating with PRPs to implement remedy
- **South El Monte OU – Subject of this Interim ROD**
- Whittier Narrows OU – Interim ROD Amendment signed, EPA is currently conducting the Remedial Design
- Suburban OU – No action remedy selected in ROD.
- Richwood OU – The remedial action for this water supply remedy has been completed by the state.
- Puente Valley OU – Interim ROD signed, EPA is negotiating with PRPs to implement remedy

The South El Monte OU remedial action selected in this ROD is an interim action because it is limited to controlling the migration of contamination. Additional remediation may be needed to clean up VOC contamination remaining in the groundwater. EPA will use information collected during operation of the selected remedy to help determine the need for additional actions and the nature of the final remedy. Future remedial actions may include additional actions at or in the vicinity of industrial facilities identified as groundwater contamination sources in the South El Monte OU. This interim action will neither be inconsistent with, nor preclude, implementation of a final remedy. The OU-specific actions currently being undertaken in the San Gabriel Valley are primarily interim actions. It is anticipated that a final ROD will be issued for the entire San Gabriel Valley Superfund sites once interim remedial actions have been selected for the individual OUs.

## 5 Site Characteristics

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### 5.1 Location and Topography

The South El Monte OU lies in the south-central portion of the San Gabriel Valley (Figure 1), approximately 25 miles from the Pacific Ocean, in eastern Los Angeles County. The San Gabriel Valley is a broad piedmont plain that slopes gradually to the southwest at a gradient of approximately 65 feet per mile (California Department of Water Resources {CDWR}, 1966). The San Gabriel Valley contains the subsurface San Gabriel Basin. This structural basin is a natural groundwater reservoir that collects rainfall on the valley floor and run-off from the surrounding highlands, recharging the groundwater aquifer.

The San Gabriel Basin is bounded to the north by the San Gabriel Mountains and to the southwest, south, and southeast by a crescent-shaped system of low hills. The hills making up the system, from west to east, are the Repetto, Merced, Puente, and San Jose Hills. The only significant break along this boundary falls between the Merced and Puente Hills at Whittier Narrows. Whittier Narrows is the lowest point in the San Gabriel Valley and is the exit for the San Gabriel and Rio Hondo Rivers and their tributaries, which serve as the drainage system for the valley.

The South El Monte OU covers a surface area of approximately eight square miles. The OU is not defined by any significant physiographic features. The South El Monte OU varies from approximately 312 feet mean above sea level (MSL) in the northeast to 200 feet above MSL in the southwest.

San Gabriel Boulevard defines the western boundary of the South El Monte OU, as described in Section 1.1. The northern, eastern and southern boundaries coincide with the San Bernardino Freeway (I-10), the San Gabriel River Freeway (I-605) and the Pomona Freeway (Highway 60), respectively.

Most of the annual precipitation in the South El Monte OU occurs intermittently during the winter months of December through March. The long-term average precipitation for the San Gabriel Basin is about 18 inches per year. Temperatures are usually moderate; the average annual temperature in the San Gabriel Valley is about 62 degrees Fahrenheit (°F). January and July are the coldest and warmest months of the year, respectively.

### 5.2 Surface Water

Two major stream systems carry surface flow from the San Gabriel Valley: the San Gabriel River and the Rio Hondo and their tributaries. The headwaters for these two systems are in the San Gabriel Mountains. The systems transverse the San Gabriel Valley in a southwesterly direction and exit the valley at Whittier Narrows. Except in the case of significant storms, these channels do not carry much natural run-off. There is considerable non-natural flow from industrial and wastewater plant discharge and imported surface water intended for groundwater recharge.

Nearly all of the stream channels comprising the surface water drainage of the San Gabriel Valley have been modified and concrete-lined (including a portion of the Rio Hondo and its tributaries in the South El Monte OU vicinity). This lining minimizes recharge of the aquifer by surface water flow.

The San Gabriel River is located near and parallel to the eastern boundary of the South El Monte OU and is unlined. The Rio Hondo is concrete-lined in the northwestern portion of the South El Monte OU, but unlined in the southwestern portion. The Rio Hondo drains the northwest portion of the San Gabriel Valley. The Rio Hondo traverses the South El Monte OU from the northwest to the southwest and exits near the southwest corner of the OU. Most of the flow in the Rio Hondo is diverted into the Peck Road

Spreading Grounds north of the South El Monte OU, so significant flow in the Rio Hondo through the South El Monte OU is limited to substantial storm events.

Where the river channels are unlined, surface water recharges the underlying aquifers. Recharge from the San Gabriel River occurs year round because of the continuous flow created by discharges of treated waste water. Recharge from the Rio Hondo is seasonal but may be significant, particularly downstream of the South El Monte OU in Whittier Narrows. .

## 5.3 Geology

### 5.3.1 San Gabriel Basin

The San Gabriel Basin is filled with alluvial deposits, primarily of Quaternary age, which overlie relatively impermeable rock. These deposits are 2,000 to 4,000 feet thick over the center of the basin and range between approximately 250 to 800 feet thick at the basin outlet in Whittier Narrows. The deepest portion of the San Gabriel Basin, reportedly in excess of 4,000 feet deep, is located in the northwest portion of the South El Monte OU.

There are two distinct sources of sediment in the basin: the coarse-grained crystalline rocks of the San Gabriel Mountains and the finer-grained sedimentary rocks of the hills to the southeast and southwest. Sediment derived from the San Gabriel Mountains to the north is generally coarser-grained than that from the hills to the south. Consequently, hydraulic conductivity of the alluvium generally increases with proximity to the San Gabriel Mountains. The distribution of the sediments deposited in the basin is also controlled by the position relative to river and tributary courses. In particular, coarse-grained sediments are prevalent in the San Gabriel River proximity. Most of the San Gabriel Basin is characterized by interfingering lenses of alluvial deposits (e.g., cobbles, gravel, silt, and clay) and the alluvial deposits show a high degree of variability in sediment type, both vertically and laterally.

Major structural features controlling regional ground-water flow in the San Gabriel Basin include the topographic highs (i.e., San Gabriel Mountains and southern hills) and topographic lows (i.e., Whittier Narrows). Four major faults in the San Gabriel Basin potentially impact ground-water flow: the Sierra Madre Fault System, the Raymond Fault, the Lone Hill-Way Hill Fault, and the Workman Hill Fault.

### 5.3.2 South El Monte OU

The sediments encountered during the South El Monte OU RI were unconsolidated alluvial deposits. Based on regional studies (CDWR, 1966), the surface sediments are primarily Recent alluvial deposits that are underlain by Pleistocene-age older alluvium. The Recent alluvial deposits are not readily discernible from the older alluvium. In general, the lithology in the eastern half of the South El Monte OU is coarser than the western half because of the influence of the San Gabriel River. In the western portion of the OU, particularly west of the Rio Hondo, the aquifer contains more extensive finer-grained deposits.

In significant portions of the South El Monte OU, there is a shallow water-bearing zone that is separated, to varying degrees, from a deeper intermediate water-bearing zone by a sequence of finer-grained, low permeability soils. The separation between the shallow and intermediate zones is corroborated by differences in water chemistry and groundwater levels.

In the western half of the South El Monte OU, the shallow zone extends from the water table to the top of the separating sequence, which was generally encountered between 60 and 130 feet bgs. The average

depth to the bottom of the shallow zone is approximately 100 feet bgs. The shallow zone consists of sand and gravel layers interbedded with finer-grained soils.

Throughout most of the western part of the South El Monte OU, the shallow and intermediate zones are separated by a sequence of finer-grained soils rather than a single, homogenous fine-grained stratum. The separating sequence of finer-grained soils varies in thickness from about 45 to 165 feet. The composition of the separating sequence is variable. In the far northwest portion of the OU, it is primarily silts and clays. Towards the southern edge of the South El Monte OU, the separating sequence contains increasing percentages of sand and gravel and in some locations the separating sequence is poorly defined or absent.

The intermediate zone is the water-bearing zone present from the base of the separating sequence to a depth of approximately 400 feet bgs. The 400 foot depth was selected based on water quality data indicating that this is approximately the maximum depth of VOC exceedances of drinking water standards in the area. The intermediate zone consists of a series of coarse-grained sediments (sands and gravels) interspersed with periodic thin lenses of finer-grained strata.

## 5.4 Hydrogeology

### 5.4.1 San Gabriel Basin

The San Gabriel Groundwater Basin comprises approximately 167 square miles of water-bearing valley land (CDWR, 1966). The maximum depth of alluvial fill within the main basin is unknown, though CDWR (1966) shows an alluvial depth of more than 4,000 feet at a location in the northwest portion of the South El Monte OU (CDWR, 1966).

Natural features that control the regional pattern of groundwater movement in the San Gabriel Basin include topographic highs (San Gabriel Mountains and southern hills) and lows (the valley floor, especially Whittier Narrows), and to some extent faults. Generally, groundwater in the basin flows from topographically high to low areas in the absence of groundwater pumping. In addition, groundwater flow is also controlled by the locations of significant recharge, such as undeveloped alluvial fans, riverbeds and spreading basins. Recharged groundwater moves away from these areas, generally towards topographically lower areas. Under natural groundwater flow conditions, such as those encountered in the first half of this century, groundwater generally flowed away from the margins of the basin towards the center of the alluvial valley, and then towards Whittier Narrows (EPA, 1992a).

In parts of the basin, including the western portion of the South El Monte OU, concentrated groundwater withdrawal by pumping significantly affects the direction and rate of groundwater flow. With the increased use of wells to extract groundwater from the basin, the pattern of groundwater flow in the basin has changed over time (EPA, 1992a). About 80 percent of the groundwater discharge from the San Gabriel Basin is now to production wells (EPA, 1992a). The remaining groundwater discharge consists of subsurface outflow through Whittier Narrows and minimal discharge to surface water in Whittier Narrows and Puente Valley.

### 5.4.2 South El Monte OU

As described above, based on the lithologic, water-level, and contamination data generated during the RI, the aquifer in much of the South El Monte OU has been divided into: a shallow zone (representing approximately the upper 50 to 100 feet of the aquifer); a finer-grained separating sequence of varying thickness present beneath the shallow zone; and an intermediate zone that is found beneath the separating sequence and extends to a depth of approximately 400 feet. The aquifer in the South El Monte OU extends much deeper than 400 feet (perhaps to as deep as 4,000 feet), however significant contamination

is not expected at depths of greater than 400 feet. The unconsolidated deposits in the South El Monte OU are of fluvial origin and consist of interbedded sediments comprised of gravel, sand, silt, and clay and mixtures of these materials.

Depth-to-water in the western half of the South El Monte OU (where the RI activities were focused) ranges from approximately 40 feet bgs in the northern portion of the OU to less than 25 feet bgs along the southern boundary of the OU.

Hydraulic conductivity is a measure of how easily fluids can flow through porous media. The geologic materials in the South El Monte OU vary from clay to gravel over short distances, thus estimates of hydraulic conductivity in the area can vary considerably. On average, the hydraulic conductivity of the shallow zone is expected to be in the 200 to 300 feet/day range and the intermediate zone in the 50 to 100 feet/day range. Specific testing of two shallow extraction wells installed in the south-central portion of the OU during the RI/FS yielded hydraulic conductivity estimates in the 150 to 400 feet/day range.

### **Groundwater Flow**

Groundwater flow is described below in terms of flow direction and gradient, both in the horizontal and vertical dimensions. Horizontal flow is discussed for the shallow zone, where higher levels of VOC contamination occur, and the intermediate zone where lower levels of VOC contamination occur.

Shallow groundwater contours prepared during the RI/FS indicate relatively uniform flow to the southwest throughout most of the South El Monte OU at hydraulic gradients averaging about 0.002 (Geosystems Consultants, Inc., 1998). The shallow zone flow direction is less clear in the northwest corner of the OU. There is the potential that active production wells located to the west are impacting shallow zone water levels and flow direction in the northwest corner of the OU.

Intermediate zone piezometric surface contours prepared during the RI/FS indicate relatively uniform flow to the southwest, into Whittier Narrows, with a hydraulic gradient of about 0.002 (Geosystems, Consultants, Inc. 1998). In the northwest corner of the OU, however, flow is towards the west and northwest with a gradient of about 0.003. Flow to the northwest in this area is consistent with extraction from production wells to the west and northwest. The location of the groundwater flow divide that separates flow towards the south from flow towards the west likely varies seasonally and with changes in the western pumping.

The shallow and intermediate zone groundwater elevation data recorded during the RI/FS were used to estimate vertical hydraulic gradients between adjacent screen intervals in the multi-port monitoring wells. In nearly all cases, vertical gradients are downward, ranging in magnitude from 0.001 to as much as 0.238 between the shallow and intermediate zones in the well located in the northwest corner of the OU (Geosystems Consultants, Inc., 1998). The large vertical gradients in the northwest corner of the OU indicate the high degree of separation between the shallow and intermediate zones in this area.

The downward vertical gradients are the result of pumping in the intermediate aquifer and resistance to vertical flow caused by the finer-grained separating sequence.

## **5.5 Groundwater Management**

The South El Monte OU is located in the Main San Gabriel Basin. The rights to pump groundwater from the San Gabriel Basin are adjudicated (i.e., assigned to specified users in accordance with a court judgment). There are two judgments that govern groundwater management in the South El Monte OU vicinity.

### **5.5.1 San Gabriel Basin Judgment**

Water rights in the Main San Gabriel Basin were adjudicated in a stipulated judgment by the Superior Court of Los Angeles County in 1973. This adjudication resulted in assigning water rights to approximately 50 parties that each hold rights to greater than one percent of the natural safe yield of the basin (152,700 acre-feet per year, established in the judgment), and approximately 100 parties that each hold rights to less than 1 percent of the natural safe yield. Also, according to the judgment, only selected parties have the right to export groundwater out of the Main San Gabriel Basin.

As amended in 1992, the judgment also establishes the duties of a Watermaster, which include annually determining an operating safe yield for the basin, monitoring pumpers' compliance with the judgment, issuing permits for all new and increased pumping in the basin, and preparing an annual report that includes details of pumping activities in the basin. The amount of groundwater that each water rights holder can pump in any year is adjusted by prorating the pumper's prescriptive rights (percentage of natural safe yield) by the operating safe yield, as established by the Watermaster.

The majority of the groundwater pumped from the Main San Gabriel Basin is used for drinking water, supplied to the public by purveyors that are regulated as public water supply systems. Annually, pumping typically equals or exceeds the operating safe yield of the basin. When excess extraction occurs, the judgment has established provisions for assessing pumpers the cost of importing replacement water to replenish the excess amount extracted. Replacement water is imported water purchased by the Upper San Gabriel Valley Municipal Water District and artificially recharged within the basin. The 1997-98 replacement water assessment was \$246.65 per acre-foot.

### **5.5.2 Long Beach Judgment**

The Long Beach Judgment is the 1964 settlement of a lawsuit between parties in the Central and San Gabriel Basins. This judgment mandates that an average of 98,415 acre-feet of useable water will be delivered to the Central Basin each year. This water consists of: (1) surface flow that passes through Whittier Narrows, (2) subsurface (groundwater) flow through Whittier Narrows, and (3) a portion of the water exported (piped) from the San Gabriel Basin to the Central Basin.

Although the Long Beach Judgment specifies an average entitlement of 98,415 acre-feet per year, the actual entitlement is calculated yearly by the court-appointed San Gabriel River Watermaster. The San Gabriel River Watermaster tabulates the water discharge through Whittier Narrows. If more than 98,415 acre-feet are delivered to the Central Basin from the San Gabriel Basin in a year, then the San Gabriel Basin is credited with the excess. Conversely, if less is delivered, the San Gabriel Basin is required to make up the difference either from past credits or, if that is not sufficient, through delivery of imported surface water as makeup water to the Central Basin.

## **5.6 Groundwater Contamination**

VOCs are the primary organic contaminants found in groundwater above state and federal drinking water standards in the South El Monte OU. PCE and TCE are the VOCs that are detected most often in groundwater, although other VOCs, including 1,1-DCA, cis-1,2-DCE, and 1,1-DCE were detected at high concentrations in selected portions of the shallow zone during the South El Monte OU RI. One other VOC, 1,4-dioxane, has also been detected at several locations in the South El Monte OU, but at relatively low concentrations. 1,4-Dioxane is important because it requires different treatment technologies than most of the other VOCs and is more expensive to remove from the water. A limited number of additional contaminants were detected during the RI, but at lower concentrations and at fewer locations.

In general, VOC concentrations are highest in the shallow groundwater in the vicinity of industrial facility source areas where releases have occurred. Figure 2 shows the extent of VOC contamination in the South El Monte OU in the shallow zone. As shown in this figure, there are fairly large areas where VOC concentrations exceed 10 times the drinking water standards (or 50 micrograms per liter,  $\mu\text{g/L}$ ) and several isolated smaller areas where concentrations exceed 100 times drinking water standards (or 500  $\mu\text{g/L}$ ). In these areas, concentrations of PCE and TCE detected during the last round of sampling for the South El Monte OU RI/FS range from about 40 to 730  $\mu\text{g/L}$  and non-detect to 730  $\mu\text{g/L}$ , respectively. Figure 2 clearly illustrates the large area of shallow contamination that has migrated out of the South El Monte OU and into the downgradient Whittier Narrows OU.

TCE and PCE concentrations in the intermediate zone in the South El Monte OU are much lower, generally less than 50  $\mu\text{g/L}$ . However, there are a couple of areas in the intermediate zone with elevated VOC concentrations, including one area where PCE concentrations exceed 100 times the drinking water standards (or 500  $\mu\text{g/L}$ ). The highest VOC concentrations detected in the intermediate zone in the South El Monte OU during the RI/FS was 200  $\mu\text{g/L}$  at a multi-port monitoring well zone screened from 209 to 218 feet bgs. Subsequent sampling of this well showed concentrations of 500  $\mu\text{g/L}$ . As is the case in most of the shallow zone, PCE is detected at higher concentrations than TCE in the intermediate zone. The extent of intermediate zone contamination is shown in Figure 3. Multi-port monitoring well data indicate that exceedances of drinking water standards extend down at least as deep as 400 feet bgs. Only limited data are available from depths deeper than 400 feet bgs. As is the case in shallow zone, intermediate zone exceedances of drinking water standards extend out of the South El Monte OU and into the downgradient Whittier Narrows OU.

As described above, EPA has identified numerous industrial facilities in the South El Monte OU as contaminant sources where releases have impacted groundwater quality. To address the industrial areas that contain these sources, the RWQCB, with funding from EPA, oversees site-specific investigations and cleanups.

Within the South El Monte OU, EPA's RI efforts focused on regional groundwater contamination and EPA has not yet identified any specific areas of principal threat wastes. At some of the individual industrial facilities, where elevated concentrations of contaminants have been identified in the vadose zone and shallow groundwater, the RWQCB is overseeing facility-specific remedial actions. These focused actions should address the more highly-contaminated source areas.

# 6 Current and Potential Future Site and Resource Uses

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## 6.1 Land Uses

The South El Monte OU consists of densely populated residential communities, mixed with light and heavy industrial areas, and commercial land use. Outside of the portion of the Whittier Narrows Recreation Area that extends into the southwest corner of the South El Monte OU, the area is essentially fully developed with very limited undeveloped or open areas. Within the OU, there are a number of relatively large industrial/commercial developments. Much of South El Monte, however, features numerous small industrial operations. In the portions of the South El Monte OU where the shallow groundwater contamination addressed in this ROD is found, land use is primarily light and heavy industrial. Residential areas are found adjacent to these industrial areas.

The South El Monte OU includes the entire City of South El Monte and parts of the cities of El Monte and Rosemead. Nearly all of the South El Monte OU area is fully developed, except the large block of land in the southern portion of the OU that is part of the Whittier Narrows flood control basin. Most of the land in the OU is zoned for residential use, particularly in the far eastern and western portions of the OU. These areas are likely to remain residential. Industrial activity, primarily small to medium-sized businesses, occurs across a significant area in the central portion of the South El Monte OU. There is also a relatively large industrial area along the northern boundary of the OU. Land use in the South El Monte OU area is not expected to change significantly over time.

## 6.2 Groundwater Uses

The State of California has designated all portions of the San Gabriel Basin aquifer as either a current or potential source of drinking water. Currently, groundwater extracted within the South El Monte OU is used as municipal water supply for residential, commercial and industrial purposes. As discussed previously, water rights in the Main San Gabriel Basin are fully adjudicated. Thus, the Main San Gabriel Basin Watermaster monitors all extraction. The producers that extract groundwater from within the South El Monte OU are: Amarillo Mutual Water Company, California American Water Company, California Domestic Water Company, Del Rio Mutual Water Company, City of El Monte, Los Angeles County, City of Monterey Park, San Gabriel Valley Water Company, and Woodland Farms (agricultural user). VOCs are detected in nearly all production wells in the South El Monte OU area. The City of El Monte, Los Angeles County, the City of Monterey Park, and San Gabriel Valley Water Company have had to shut down wells because of contamination and both the City of Monterey Park and San Gabriel Valley Water Company have installed wellhead treatment systems to address VOC contamination in production wells.

Production from the shallow zone is limited as most of the production wells are perforated in the deeper zone. There are currently no drinking water supply wells that draw water from the shallow, highly contaminated zones in the vicinity of industrial facilities. Future groundwater use in the OU vicinity is expected to be similar to current use, with active extraction occurring in many portions of the OU. Future extraction will likely be primarily from the intermediate zone and deeper.

# 7 Summary of Site Risks

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EPA completed a Preliminary Baseline Risk Assessment (RA) for the South El Monte OU in 1997 (EPA, 1997a). The baseline risk assessment estimates the human health and environmental risks that the site could pose if no action were taken. It is one of the factors that EPA considers in deciding whether to take action at a site. In the South El Monte OU, EPA's decision to take action is based principally on the presence of contamination in groundwater at levels that exceed drinking water standards, evidence that contamination will continue to migrate into groundwater areas that are presently clean or less contaminated, and the current and potential use of groundwater in and around the South El Monte OU as a source of drinking water. The risk assessment is also used to identify the contaminants and exposure pathways that need to be addressed by the remedial action. This section of the ROD summarizes the results of the Preliminary Baseline RA for the South El Monte OU.

## 7.1 Summary of Human Health Risk Assessment

This summary of human health risk includes sections on the identification of chemicals of concern (COCs), exposure assessment, toxicity assessment, and risk characterization.

### 7.1.1 Identification of Chemicals of Concern

The Preliminary Baseline RA is based on data collected from production and monitoring wells between July 1993 and July 1995, except for 15 monitoring wells where data collected between February 1990 and April 1993 is used. The older data was used for the 15 wells because more recent sampling results were not available. Sampling data were available from 25 production wells, one EPA monitoring well, and 131 site assessment monitoring wells during this period. A total of 43 VOCs were detected in South El Monte OU groundwater and all of the VOCs detected were considered chemicals of potential concern (COPCs) for evaluation in the Preliminary Baseline RA. Of these 43 COPCs, only eight contributed significantly to the estimated risks and are discussed as chemicals of concern (COCs) in this RA summary. Table 1 provides information on these COCs in each of the seventeen well groupings and thirteen individual production wells considered in the RA.

As shown in Table 1, the eight COCs found in South El Monte OU groundwater that contribute significantly to the risk estimates were benzene, 1,2-dichloroethane (1,2-DCA), 1,2-dichloroethene (1,2-DCE), cis-1,2-dichloroethene (cis-1,2-DCE), 1,2-dichloropropane (1,2-DCP), trichloroethene (TCE), tetrachloroethene (PCE), and vinyl chloride. All of the COCs are VOCs and all are present in the most contaminated portion of the shallow zone. Only two of the COCs, PCE and TCE, were also found in the deeper production wells. The table also shows the frequency of detection (i.e., the number of times the chemical was detected in the samples collected from each well grouping or production well), generally using data from 1993 through 1995. The table indicates that PCE and TCE are the most frequently detected COCs in the South El Monte OU and represent the extent of contamination in groundwater at the site shown in Figures 2 and 3.

Table 1 presents the exposure point concentration for each of the COCs detected in each of the well groupings and production wells evaluated. In all cases, the highest exposure point concentrations were from either TCE or PCE. The arithmetic mean concentration shown in Table 1 was used for the calculations of "average" potential risk and either the maximum detected concentration or the 95th percentile (95%) upper confidence limit (UCL) on the arithmetic mean concentration (whichever was lower) was used as the exposure point concentration for calculating the maximum potential risk for each COC in each well group and production well.

### 7.1.2 Exposure Assessment

Exposure refers to the potential contact on an individual (or receptor) with a chemical. Exposure assessment is the determination or estimation of the magnitude, frequency, duration, and route of potential exposure. This section briefly summarizes the potentially exposed populations, the exposure pathways evaluated, and the exposure quantification from the Preliminary Baseline RA performed for the South El Monte OU.

Land use in the South El Monte OU is primarily residential, commercial and industrial. At the time of the Preliminary Baseline RA, there were twenty-three active or standby production wells in the South El Monte OU. Of these, all but one provide drinking water for domestic use. Exposure to contaminants in groundwater could occur through the use of groundwater for domestic purposes, such as ingestion of tap water, inhalation of contaminants from water used for bathing, cooking and laundering, and dermal contact with the water. The State of California has designated all portions of the San Gabriel Basin aquifer as either a current or potential source of drinking water. In the baseline RA, EPA evaluated two scenarios under which individuals might be exposed to contaminated groundwater:

1. Potential for a current resident to be exposed to contamination in groundwater through domestic use
2. Potential for a future resident to be exposed to contamination in groundwater through domestic use

Based on potential for exposure frequency, duration, and estimated intake, residents exposed to contaminated groundwater used for domestic purposes are expected to be the maximally exposed population.

It should be noted that the assumption that residents could be exposed to untreated groundwater from the well groupings or production wells evaluated is conservative. There are not currently any wells producing water for public drinking water supply from the highly contaminated shallow groundwater areas in the western or eastern portions of the South El Monte OU. Further, regulations, such as the Safe Drinking Water Act, currently prohibit water purveyors from serving water contaminated in excess of drinking water standards to consumers.

### 7.1.3 Toxicity Assessment

Table 1 shows the eight COCs that are the major risk contributors for the South El Monte OU. Based on data from various animal studies and other activities, two of the compounds (benzene and vinyl chloride) are classified as human carcinogens, four of the compounds (1,2-DCA, 1,2-DCP, PCE and TCE) are classified as probable human carcinogens (EPA weight of evidence class B2). The carcinogenic oral slope factors (toxicity values) for these six compounds are shown in Table 2.

All six of the above compounds are also considered carcinogenic through the inhalation route. The inhalation slope factors, based on data from various animal studies, for these six compounds are presented in Table 2.

The dermal route of exposure was incorporated into the preliminary baseline RA using an equation that incorporates the exposure point concentration and a dermal permeability constant (in centimeters/hour [cm/hr]). The dermal exposure risks are presented in Tables 3 and 4. The dermal permeability constants for the eight COCs are:

- Benzene- 0.021 cm/hr
- 1,2-DCA- 0.0053 cm/hr
- 1,2-DCE- 0.01 cm/hr

- 1,2-DCP- 0.01 cm/hr
- Cis-1,2-DCE- 0.01 cm/hr
- PCE- 0.048 cm/hr
- TCE- 0.016 cm/hr
- Vinyl Chloride- 0.0073 cm/hr

In addition to their classification as probable human carcinogens, six of the seven COCs (all except vinyl chloride) have toxicity data indicating their potential for adverse noncarcinogenic health effects in humans. The chronic toxicity data available for these compounds have been used to develop oral and inhalation reference doses (RfDs). The RfD represents a level that an individual may be exposed to that is not expected to cause any deleterious effect. The oral and inhalation RfDs are presented in Table 2.

### 7.1.4 Risk Characterization

This section presents the results of the evaluation of the potential risks to human health associated with exposure to contaminated groundwater in the South El Monte OU. Exposure scenarios are evaluated by estimating the noncarcinogenic and carcinogenic risks associated with them.

For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the carcinogen. These risks are probabilities that usually are expressed in scientific notation (e.g.,  $1 \times 10^{-6}$ ). An excess lifetime cancer risk of  $1 \times 10^{-6}$  indicates that an individual has a 1 in 1,000,000 chance of developing cancer as a result of site-related exposure. This is referred to as an "excess lifetime cancer risk" because it would be in addition to the risks of cancer individuals face from other causes such as smoking or exposure to too much sun. The chance of an individual developing cancer from all other causes has been estimated to be as high as one in three. EPA's generally acceptable risk range for site-related exposures is  $10^{-4}$  to  $10^{-6}$ . An excess lifetime cancer risk of greater than one in ten thousand ( $1 \times 10^{-4}$ ) is the point at which action is generally required at a site (EPA, 1991a).

The potential for noncarcinogenic effects is evaluated by comparing an exposure level over a specified time period (e.g., a life-time) with a reference dose (RfD) derived for a similar exposure period. The ratio of exposure to toxicity is called a hazard quotient (HQ). An HQ less than one indicates that a receptor's dose of a single contaminant is less than the RfD and that toxic noncarcinogenic effects from exposure to that chemical are unlikely. HQs for all COCs that affect the same target organ (e.g., liver) are added together to generate the Hazard Index (HI). An HI less than one indicates that noncarcinogenic effects from all the contaminants are unlikely. Conversely, an HI greater than one indicates that site-related exposures may present a risk to human health.

### Conclusions

Tables 3a, 3b, 4a and 4b present the risk characterization summaries for carcinogenic (Tables 3a and 3b) and noncarcinogenic effects (Tables 4a and 4b). The risk estimates presented in these tables are based on average and reasonable maximum exposure (RME) and were developed by taking into account various conservative assumptions about the frequency and duration of exposure to groundwater, as well as the toxicity of the primary COCs.

To assess potential current residential exposure to groundwater through domestic use, data from all active drinking water wells sampled from July 1993 through July 1995 that had positive detections of VOCs were used (a total of thirteen production wells). The cumulative estimated hazard index was less than one for the average exposure and RME scenarios (Table 4a). The estimated excess lifetime cancer risk ranged from  $5 \times 10^{-8}$  to  $5 \times 10^{-7}$  for the average exposure scenario and  $5 \times 10^{-7}$  to  $3 \times 10^{-6}$  for the RME scenario (Table 3a). The estimated excess lifetime cancer risks based on exposure to groundwater from the

production wells that are currently active are either less than or towards the lower end of the  $10^{-4}$  to  $10^{-6}$  acceptable risk range used by EPA to manage risks at Superfund sites. In addition, the estimated risks for these production wells are conservative because they do not take into account treatment of groundwater or the blending of groundwater from these wells with other production wells. The water purveyors are prohibited from serving water that exceeds MCLs to any of their customers.

To assess potential future residential exposure to contamination in groundwater through domestic use, the preliminary RA focused on seventeen individual areas within the OU that had groundwater concentrations exceeding 10 times the primary drinking water standards (MCLs). These seventeen areas are represented by Well Groups 1 through 17 on Tables 3b and 4b. The well groups consist primarily of shallow monitoring wells at or near industrial facilities and include those wells with the highest VOC concentrations in the OU area. The shallow intervals monitored by these wells are not currently used for drinking water supply. Use of these well groups to evaluate potential future risk is a conservative approach. The estimated hazard index ranged from 0.07 to 4 for the average residential exposure scenario and 0.1 to 20 for the RME residential scenario (Table 4b). Major chemical contributors to the estimated hazard indices include benzene, cis-1,2-DCE, 1,2-DCE, PCE, and TCE. The estimated excess lifetime cancer risk ranged from  $2 \times 10^{-6}$  to  $8 \times 10^{-5}$  for the average exposure scenario and  $2 \times 10^{-5}$  to  $9 \times 10^{-4}$  for the RME (Table 3b). Major chemical contributors to the estimated excess lifetime cancer risk include benzene, 1,2-DCA, 1,2-DCP, PCE, TCE, and vinyl chloride. The estimated hazard indexes and excess lifetime cancer risks based on potential future exposure to groundwater from many of the Well Groups exceed the acceptable risk range ( $1 \times 10^{-5}$  -  $1 \times 10^{-6}$ ) used by the EPA to manage risks at Superfund sites. Based on these estimated risks, the areas around these well groups should be considered for remediation.

A screening level evaluation of volatile emissions to indoor air provides a conservative estimate of potential residential exposure to COCs in groundwater via this pathway. Potential current and future exposures were evaluated for the average and RME scenarios. The estimated hazard quotients for all of the production wells (used for potential current exposure) and well groups (used for potential future exposure) were all below 1. The estimated current excess lifetime cancer risks for indoor air using production wells were below  $10^{-6}$  for both average and RME scenarios. The estimated excess lifetime cancer risks for potential future exposures to volatile emissions from groundwater using data from the 17 well groups ranges from  $1 \times 10^{-9}$  to  $9 \times 10^{-6}$ .

Based on this risk characterization summary, actual or threatened releases of hazardous substances at this site, if not addressed by implementing the response action selected in this ROD, present a potential threat to public health, welfare, or the environment. As described in the preceding paragraphs, the groundwater contamination does not currently threaten public health or welfare.

## 7.2 Summary of Ecological Risk Assessment

An evaluation was conducted as part of this preliminary groundwater risk assessment to determine whether there are any potential ecological exposure pathways in the South El Monte OU. The potential for exposure to ecological receptors is related to the extent that groundwater contaminants migrate to or are discharged to surface water habitat. The environmental evaluation indicated that there are two plausible means for ecological receptors to be exposed to groundwater contaminants in the South El Monte OU:

- Extraction and discharge of contaminated groundwater into surface water bodies containing ecological receptors.
- Natural discharge of contaminated groundwater into surface water bodies that contain ecological receptors.

Outside of periodic, short-duration discharge associated with aquifer testing activities, there is no known surface-water discharge of extracted groundwater in the South El Monte OU. Based on the very limited frequency and duration of this RI-related type of discharge, no additional evaluation is warranted for this potential pathway.

The depth-to-groundwater in the South El Monte OU is generally between 15 and 50 feet bgs. Given these conditions, it is very unlikely that groundwater could discharge to surface water and potential exposures to aquatic and terrestrial organisms are unlikely as well. As indicated in EPA's Interim San Gabriel Basin RI Report (EPA, 1992a), natural discharge of groundwater to surface water (caused by shallow groundwater levels intersecting stream channel bottoms) is not expected in either the Rio Hondo or San Gabriel Rivers north of the Pomona Freeway (i.e., in the South El Monte OU area).

Based on this screening-level environmental evaluation, there are no complete ecological exposure pathways in the South El Monte OU.

## 7.3 Conclusion

In addition to the risk assessment, EPA has considered the state and federal drinking water standards (MCLs and MCLGs) that have been established for contaminants found in the South El Monte OU. MCLs and MCLGs are set at levels, including an adequate margin of safety, where no known or anticipated adverse health effects are expected to occur. Even if the cumulative carcinogenic site risk to an individual based on reasonable maximum exposure is less than  $10^{-4}$  and the non-carcinogenic hazard quotient is less than 1, remedial action will generally be warranted if MCLs or non-zero MCLGs are exceeded ("Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions," OSWER Directive 9355.0-30, April 22, 1991).

Contaminant concentrations exceed MCLs throughout a significant portion of the South El Monte OU, including groundwater regions that are currently used as sources of drinking water. In some areas, contamination levels exceed 100 times MCLs. Based on the risk characterization, the presence of widespread contamination in excess of MCLs, the use of groundwater in the South El Monte OU as a source of drinking water, and evidence that the contamination is migrating, EPA has determined that actual or threatened releases of hazardous substances at this site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

## 8 Remediation Objectives

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EPA's Remedial Action Objectives (RAOs) for the South El Monte OU are to:

- Prevent exposure of the public to contaminated groundwater;
- Contain further migration of contaminated groundwater from more highly contaminated portions of the aquifer to less contaminated areas or depths;
- Reduce the impact of continued contaminant migration on downgradient water supply wells, and;
- Protect future uses of less contaminated and uncontaminated groundwater.

These objectives reflect EPA's regulatory goal of restoring usable groundwater to its beneficial uses wherever practicable, within a time frame that is reasonable, or, if restoration is deemed impracticable, to prevent further migration of the plume, prevent exposure to the contaminated groundwater, and evaluate further risk reduction (40 C.F.R. Section 300.430 {a} {1} {iii} {F}). The RAOs address the risks associated with exposure to contaminated groundwater in the South El Monte OU (described above in Section 7) by significantly limiting the potential for future exposure.

To meet the RAOs, migration control will be required in the South El Monte OU as long as VOC concentrations in migrating groundwater exceed state or federal drinking water standards. The RAOs for the South El Monte OU do not include numeric, chemical-specific objectives in the aquifer or a time frame for restoration because this is an interim action to contain contamination. Although this interim remedial action is not focused on mass removal, the proposed remedy will remove significant contaminant mass from the aquifer, in effect beginning the restoration process.

# 9 Description of Alternatives

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EPA evaluated the four alternatives for the South El Monte OU:

- Alternative 1 – No-Action
- Alternative 2 – Groundwater Monitoring (No Active Response)
- Alternative 3 – Intermediate Zone Control in Western South El Monte OU, modified from that described in the FS (see Section 14)
- Alternative 4 – Intermediate Zone Control in Western South El Monte OU and Shallow Zone Source Control

A brief description of the four remedial alternatives is presented below.

## 9.1 Alternative 1 – No Action

The NCP requires EPA to consider a no action alternative and to evaluate the risk to the public if no action were taken. The No-Action Alternative provides a baseline for comparison with other remedial alternatives under consideration. In this alternative, no remedial actions are taken to control contaminant migration from or within the South El Monte OU. This alternative does not include any groundwater monitoring, extraction, or treatment, so there is no cost associated with this alternative.

The No-Action Alternative allows continued, uncontrolled migration of contamination. This alternative does not meet EPA's RAOs and does not comply with state and federal requirements.

## 9.2 Alternative 2 – Groundwater Monitoring (No Active Response)

The only remedial action specifically incorporated into Alternative 2 is groundwater monitoring to monitor VOC plume migration in the shallow and intermediate zones in the South El Monte OU. Alternative 2 does not have any extraction, treatment, conveyance, or discharge components. This alternative would rely solely on passive mechanisms such as dilution or dispersion to address contaminant migration. This alternative also assumes that the groundwater management activities described in Section 5.5 continue to limit human exposure to groundwater contamination. This alternative includes implementing a monitoring program using new and existing wells to monitor contaminant migration and compliance with the South El Monte OU remedial action objectives in the shallow and intermediate zones.

### 9.2.1 Monitoring

In order to estimate costs and evaluate effectiveness, this alternative assumes installation of three new multi-port monitoring wells monitoring the shallow and intermediate zones to supplement the existing monitoring well network. The monitoring program is assumed to include semi-annual monitoring of seven existing multi-port wells and three new multi-port wells.

## **9.3 Alternative 3 Intermediate Zone Control in Western South El Monte OU**

Alternative 3 includes extraction, treatment, and monitoring of intermediate zone contaminated groundwater in the north-western half of the South El Monte OU. The system would be designed to contain groundwater with VOC concentrations exceeding primary drinking water standards (i.e., MCLs) that is moving in the intermediate zone from the source areas in the central portion of the OU towards groundwater pumping centers to the west. Drinking water wells completed in the intermediate zone in the western areas have already been impacted by VOC contamination above drinking water standards. Alternative 3 does not include any specific measures to address shallow and intermediate zone contamination migrating to the south towards Whittier Narrows. This alternative assumes that EPA's remedy in the Whittier Narrows OU will provide containment of this contamination. The key components of Alternative 3 are described below.

### **9.3.1 Extraction**

For the intermediate zone contamination migrating towards the west, Alternative 3 provides the option of either installing new extraction wells, using existing San Gabriel Valley Water Company's (SGVWC) Plant 8 wells, City of Monterey Park's well MP 5, well MP 12 and proposed well MP 15P, and Southern California Water Company's (SCWC's) San Gabriel 1 and 2 wells (shown in Figure 5), or using a combination of new and existing wells. The intermediate zone extraction would control western migration of groundwater that exceeds drinking water standards.

The existing production wells that could potentially be incorporated into the extraction component of Alternative 3 are screened in the depth interval from approximately 200 feet bgs to 770 feet bgs. If new wells are used, they would likely be screened in the depth interval from approximately 250 to 450 feet bgs. The total extraction rate assumed for cost estimation purposes is 10,020 gallons per minute (gpm). This extraction rate is higher than that assumed in the FS. The higher extraction rate is needed to address the recently discovered contamination found further to the west than previously depicted (see Section 14 for additional details). The actual extraction well locations and rates would be determined during remedial design based on additional evaluation of the extent of contamination and further discussions with local water purveyors. Two cost estimates are presented in Table 5 to account for the use of either new extraction wells or existing water purveyor wells.

### **9.3.2 Treatment**

Extracted groundwater containing VOCs that exceed drinking water standards would be treated by either air stripping with off-gas treatment or liquid-phase carbon adsorption. For cost estimation purposes, this alternative assumes a treatment system consisting of air stripping with carbon adsorption of VOCs in the off-gas. Other treatment processes could be evaluated during remedial design.

### **9.3.3 Conveyance and Discharge**

If the necessary agreements can be reached, the treated water would be delivered to three of the local water purveyors with impacted wells and existing facilities in the western portion of the South El Monte OU: SGVWC, the City of Monterey Park, and SCWC. The assumed treatment plant locations are located at or adjacent to the facilities of these three water purveyors, so conveyance of treated water would be minimal. If necessary, other discharge options, such as aquifer recharge or surface water discharge, would be evaluated during remedial design.

### **9.3.4 Monitoring**

Alternative 3 includes implementation of a monitoring program to monitor remedy performance and ensure compliance with the RAOs in the South El Monte OU. Both groundwater levels and groundwater quality would be measured as part of the evaluation of remedy performance. In order to estimate costs and evaluate effectiveness, this alternative assumes installation of two new multi-port monitoring wells and semi-annual sampling of the two new and seven existing multi-port wells.

## **9.4 Alternative 4 – Intermediate Zone Control in Western South El Monte OU and Shallow Zone Source Control**

Alternative 4 includes all of the components described above for Alternative 3, plus a groundwater extraction and treatment system in the shallow zone source area in the South El Monte OU. The additional extraction is intended to inhibit migration of high-level shallow zone contamination from the South El Monte OU into shallow and intermediate zones in the downgradient Whittier Narrows OU that are currently less contaminated. The key components of the alternative are described below.

### **9.4.1 Extraction**

The additional groundwater extraction in Alternative 4 would occur at two existing shallow extraction wells northeast of the Rosemead Boulevard/Highway 60 (Pomona Freeway) interchange (Figure 2). The shallow containment would focus on the largest area of high level contamination in the southern portion of the South El Monte OU (Figure 2), where contamination migrates to the south towards Whittier Narrows. Although the intent of the extraction would be containment, the existing wells are located in area where they would also remove significant amounts of contamination from the shallow aquifer. The additional extraction rate assumed for cost estimation purposes is 900 gpm. This would bring the total extraction rate to 10,920 gpm. The actual extraction rates for the shallow wells would be determined during remedial design.

### **9.4.2 Treatment**

The treatment assumed for Alternative 4 is the same as that described above for Alternative 3 for the intermediate groundwater. The shallow groundwater would be treated for VOC removal by either air stripping with off-gas treatment or liquid-phase carbon adsorption. For cost estimation purposes, this alternative assumes a treatment system consisting of liquid-phase carbon adsorption. Other treatment processes could be evaluated during remedial design.

### **9.4.3 Conveyance and Discharge**

Assumptions for the intermediate zone groundwater are the same as described above for Alternative 3. The discharge assumption for the treated shallow groundwater is groundwater recharge through infiltration galleries. If necessary, other discharge options, such as surface water discharge, would be evaluated during remedial design.

#### **9.4.4 Monitoring**

The groundwater monitoring program for Alternative 4 would combine the monitoring program described above for Alternative 3 with a program to evaluate the performance of the shallow zone extraction system. To monitor performance of the shallow component of the remedy, installation of four shallow piezometers and two shallow monitoring wells was assumed downgradient of the extraction wells.

# 10 Comparative Analysis of Alternatives

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The four remedial alternatives described in Section 9 are evaluated using the nine Superfund evaluation criteria listed in 40 C.F.R. Section 300.430. The comparative analysis provides the basis for determining which alternative presents the best balance of the criteria. The first two evaluation criteria are considered threshold criteria that the selected remedial action must meet. The five primary balancing criteria are balanced to achieve the best overall solution. The two modifying criteria, state and community acceptance, are also considered in remedy selection.

## Threshold Criteria

- **Overall Protection of Human Health and the Environment** addresses whether each alternative provides adequate protection of human health and the environment, and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering controls, and/or institutional controls.
- **Compliance with ARARs** addresses the requirement of Section 121(d) of CERCLA that remedial actions at least attain legally applicable or relevant and appropriate federal and state requirements, standards, criteria, and limitations, which are collectively referred to as "ARARs," unless such ARARs are waived under CERCLA Section 121(d)(4).

## Primary Balancing Criteria

- **Long-term Effectiveness and Permanence** refers to the ability of a remedy to maintain reliable protection of human health and the environment over time.
- **Reduction of Toxicity, Mobility, or Volume Through Treatment** refers to the anticipated performance of the treatment technologies that may be included as part of a remedy.
- **Short-term Effectiveness** addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers and the community during construction and operation of the remedy until cleanup goals are achieved.
- **Implementability** addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility, and coordination with other governmental entities are also considered.
- **Cost** evaluates the estimated capital, operation and maintenance (O&M), and indirect costs of each alternative in comparison to other equally protective alternatives.

## Modifying Criteria

- **State Acceptance** indicates whether the state agrees with, opposes, or has concerns about the preferred alternative.
- **Community Acceptance** includes determining which components of the alternatives interested persons in the community support, have reservations about, or oppose.

This section describes each threshold and primary balancing criterion, evaluates each alternative in relation to each criterion, and identifies advantages and disadvantages among the alternatives in relation to each criterion. Figure 4 presents a comparative matrix in which the four alternatives are ranked for each of the evaluation criterion. The details of how the rankings have been assigned for each criterion are provided below.

## **10.1 Overall Protection of Human Health and the Environment**

The NCP requires that all alternatives be assessed to determine whether they can adequately protect human health and the environment from unacceptable risks from site contamination. These risks can be mitigated by eliminating, reducing, or controlling exposure to hazardous substances, pollutants, or contaminants.

### **10.1.1 Overall Protection of Human Health and the Environment: Evaluation of Alternatives**

Alternatives 1 and 2 provide the least overall protection of human health and the environment. Neither alternative has an active remedy component that provides migration control or containment of the contaminated groundwater. Only the existing groundwater management activities discussed in Section 5.5 would be available to control public exposure to the contaminated groundwater but would not contain the contaminated groundwater. Limitations of Alternative 1 include increased long-term potential for human exposure; leaving the burden of constructing treatment facilities to water purveyors; and increased cost, difficulty, and time required for containment. As long as existing government controls remain in effect, there should be no increase in long-term potential for human exposure with Alternative 2. The burden and cost of constructing required treatment facilities would be borne by the water purveyors. Alternative 2 includes groundwater monitoring that would provide early warning of increases in contaminant concentrations at downgradient drinking water sources. An advantage of Alternatives 1 and 2 is that there are no risks associated with treatment residuals because none are created.

Considered in conjunction with EPA's interim remedy for the Whittier Narrows OU, Alternatives 3 and 4 both satisfy EPA's remedial action objectives and reduce long-term risks to human health and the environment by containing contaminated groundwater and preventing migration from more highly contaminated areas to less contaminated areas. Alternatives 3 and 4 both address western intermediate zone contamination in the South El Monte OU. The intermediate zone contamination in the western portion of the South El Monte OU has impacted several production wells and EPA believes that controlling further contaminant migration in the intermediate zone is critical. The treatment technologies employed by these alternatives are effective at meeting federal and state MCLs. Alternative 4 is ranked higher than Alternative 3 because it includes discrete containment in a portion of the highly-contaminated shallow zone in the South El Monte OU. Alternative 4 extraction also provides additional mass removal in the shallow zone in the OU.

## **10.2 Compliance with ARARs**

This evaluation criterion is also a threshold requirement and is used to determine if each alternative would attain federal and state ARARs, or whether there is adequate justification for invoking waivers for specific ARARs.

### **10.2.1 Compliance with ARARs: Evaluation of Alternatives**

Alternatives 1 and 2 do not meet ARARs. Both alternatives allow for continued migration of contaminants above MCLs into less contaminated and uncontaminated portions of the groundwater.

Alternatives 3 and 4 were designed, in conjunction with EPA's interim remedy for the Whittier Narrows OU, to meet the ARARs described in Section 12 of this ROD. These alternatives provide containment of

contaminated groundwater as well as protection of existing production wells and significant portions of the aquifer that are currently less contaminated or uncontaminated.

## **10.3 Long-Term Effectiveness**

This evaluation criterion assesses the extent to which each remedial alternative reduces risk after the remedial action objectives are met. Residual risk can result from exposure to untreated waste or treatment residuals. The magnitude of the risk depends on the magnitude of the wastes and the adequacy and reliability of controls, if any, that are used to manage untreated waste and treatment residuals. For this interim action, untreated waste refers to any contaminated groundwater not removed from the aquifer.

The performance of the alternatives in relation to this criterion is evaluated primarily by estimating the extent to which each alternative prevents the migration of contamination into less contaminated and uncontaminated areas. Preventing or reducing contaminant migration reduces contaminant concentrations in downgradient areas, reducing risk by reducing the likelihood of exposure. Because this is an interim remedy to contain contaminant migration, untreated wastes will remain in the groundwater.

### **10.3.1 Long-Term Effectiveness and Permanence: Evaluation of Alternatives**

Alternatives 1 and 2 are ranked low for this criterion because neither alternative has an active remedy component that provides migration control or containment of the contaminated groundwater. Contaminated groundwater would continue to migrate downgradient. Although natural attenuation processes (adsorption, dilution, dispersion) would likely decrease the concentration of contaminants in the plumes, downgradient water supply wells would be vulnerable to VOC contamination. Alternatives 1 and 2 would not generate any treatment residuals.

In conjunction with EPA's interim remedy for the Whittier Narrows OU, Alternatives 3 and 4 provide containment of contaminated groundwater as indicated by groundwater modeling. Alternative 4 is assigned a slightly higher ranking than Alternative 3 because Alternative 4 provides supplemental shallow zone source control within the South El Monte OU. Because the Whittier Narrows OU remedy is providing containment at the downgradient boundary of contamination, the benefits of additional shallow zone control in Alternative 4 are more for contaminant removal than migration control. Less contaminated groundwater not contained by the remedial actions in Alternatives 3 and 4 would be subject to natural attenuation processes as it migrates downgradient. The effectiveness of natural attenuation processes would be verified by groundwater sampling.

In Alternatives 3 and 4 the residual generated from treatment of contaminated groundwater would be spent granular activated carbon. This spent granular activated carbon would be reactivated offsite. The transportation and reactivation of this residual would be conducted in accordance with applicable regulations and would present minimal long-term risks because contaminants adsorbed to the granular activated carbon would be destroyed during the reactivation process.

## **10.4 Reduction of Toxicity, Mobility, and Volume Through Treatment**

This criterion addresses the preference, as stated in the NCP, for selecting remedial actions employing treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of the hazardous substances as a principal element of the action. This preference is satisfied when treatment is

used to reduce the principal threats at a site through destruction of toxic contaminants, reduction of total mass of toxic contaminants, irreversible reduction in contaminant mobility, or reduction of total volume of contaminated media.

This evaluation focuses on the following factors for each remedial alternative:

- Whether the alternative satisfies the statutory preference for treatment as a principal element
- The treatment process employed, including the amount of hazardous materials that will be destroyed or treated and the degree of expected reduction in toxicity, mobility, or volume
- The degree to which treatment is irreversible
- The type and quantity of treatment residuals that will remain following treatment.

#### **10.4.1 Reduction of Toxicity, Mobility, or Volume Through Treatment: Evaluation of Alternatives**

Alternatives 1 and 2 do not provide any reduction in toxicity, mobility, or volume over existing conditions and do not satisfy the statutory preference for treatment. Alternatives 3 and 4 satisfy the statutory preference for treatment. These alternatives would significantly reduce the volume and mobility of contamination by inhibiting further contaminant migration. The treatment technologies considered for Alternatives 3 and 4, air stripping with off-gas controls and liquid-phase carbon adsorption, would irreversibly reduce the toxicity and volume of contaminants in the extracted groundwater and result in an effluent stream that meets drinking water standards for VOCs. Alternative 4 would provide greater reduction in the volume of contaminants present in the aquifer, although this increased contaminant removal increases costs substantially. Both treatment technologies would result in the destruction of VOCs when the granular activated carbon is regenerated

### **10.5 Short-Term Effectiveness**

This criterion evaluates the effects of each remedial alternative on human health and the environment during the construction and implementation phase until remedial action objectives are met. The following factors are addressed for each alternative:

- **Protection of workers and the community during construction and implementation phases.** This factor qualitatively examines risk that results from implementation of the proposed remedial action and the effectiveness and reliability of protective measures.
- **Environmental impacts.** This factor addresses the potential adverse environmental impacts that may result from the construction and implementation of an alternative. This factor also evaluates the reliability of the available mitigation measures to prevent or reduce potential impacts.
- **Time until RAOs are achieved.** This factor considers the amount of time required to construct remediation facilities and meet the remedial action objectives.

#### **10.5.1 Short-Term Effectiveness: Evaluation of Alternatives**

Alternative 1 is not evaluated for this criterion because there is no construction or implementation phase and RAOs would not be met. None of the other three alternatives pose unmitigable risks to the community during construction and implementation. Nor do any of the alternatives pose unmitigable risks to workers beyond general construction hazards associated with large construction projects. No

unmitigable negative environmental impacts are anticipated in the areas in which facilities would be constructed.

For Alternative 2, the RAOs would not be met as long as contaminant migration continues, which would likely be a considerable length of time. For Alternatives 3 and 4, in conjunction with operation of the Whittier Narrows OU remedy, the RAOs are met as soon as the groundwater extraction and treatment components begin operation and establish hydraulic control.

## 10.6 Implementability

This criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation. The following factors are considered:

### Technical Feasibility

- Ability to construct and operate: addresses any technical difficulties and unknowns associated with construction or operation of the technology
- Reliability of technology: focuses on the likelihood that technical problems associated with implementation will lead to schedule delays
- Ease of undertaking additional remedial action: includes a discussion of what, if any, future remedial actions may need to be undertaken and how the remedial action would interfere with, or facilitate, the implementation of future actions

### Administrative Feasibility

- Coordination with other agencies, including the need for agreements with parties other than EPA required for construction and operation of the remedy.
- Availability of necessary equipment, specialists, and provisions to assure any necessary resources
- Availability of services and materials, plus the potential for obtaining competitive bids

#### 10.6.1 Implementability: Evaluation of Alternatives

Alternative 1 is not evaluated for this criterion because no action is implemented. As described above, the implementability evaluation incorporates several factors. Each of these is discussed separately in the following text.

**Technical Feasibility: Ability to Construct and Operate.** The extraction, treatment, and conveyance technologies included in Alternatives 3 and 4 and the monitoring technologies included in Alternatives 2 through 4 are widely used. No significant difficulties are expected in construction and operation of these technologies.

**Technical Feasibility: Reliability of Technology.** The extraction, treatment, conveyance, and monitoring technologies included in Alternatives 3 and 4 and the monitoring technologies included in Alternative 2 are generally proven and known to be reliable.

**Technical Feasibility: Ease of Undertaking Additional Remedial Actions.** The alternatives would not interfere with the implementation of future response actions to further contain contamination or restore groundwater in the South El Monte OU area.

**Administrative Feasibility.** There are not likely to be any significant administrative feasibility issues associated with implementation of Alternative 2, other than obtaining access agreements for monitoring well installation. Implementation of Alternatives 3 and 4 would require acquisition of property and/or easements for the construction of extraction wells, treatment facilities, and conveyance facilities. In addition, implementing Alternatives 3 and 4 would require resolution of the following administrative issues associated with groundwater extraction and discharge of treated water to local water purveyors or to the Rio Hondo:

- Agreements may need to be made with the Watermaster or with a water purveyor to account for extraction from the basin by the parties implementing the selected remedy because these parties may not have water rights.
- An agreement with the Watermaster may be required regarding the potential need to pay replacement water fees for treated water discharged to the Rio Hondo, if the discharged water does not recharge within the Main San Gabriel Valley basin..
- Agreements would need to be reached with water purveyors that would receive treated water from the groundwater treatment facilities. These agreements will need to address the amount of water each purveyor would accept, the treated water delivery location, responsibility for any necessary capital improvements to purveyor systems, and other operational, liability, and financial arrangements.
- Water purveyors would need to obtain approval for modifications to their water supply permits.
- If treated water is discharged to the Rio Hondo, RWQCB Basin Plan water quality objectives for Rio Hondo would need to be addressed. If the discharge exceeds Basin Plan inorganic water quality objectives, it may be necessary to conduct an evaluation of the impact of the discharge on downgradient surface water and groundwater, as well as an evaluation of reuse alternatives for the VOC-treated groundwater. If water quality impacts are minimal and reuse alternatives infeasible, the discharge may be allowed.

**Availability of Services and Materials.** Implementation of Alternatives 3 and 4 would require fabrication of treatment plant equipment. Required services and materials are believed to be available, including qualified contractors for construction and operation of the necessary facilities.

Alternative 2 is assigned a higher ranking in Figure 4 because there are no significant issues that could impact implementability of this monitoring-only alternative. Alternatives 3 and 4 are ranked lower because of the administrative issues associated with groundwater extraction and treated water discharge.

## 10.7 Cost

This criterion addresses the total cost of each alternative. This includes short-term and long-term costs, and capital and O&M costs. The following cost elements are considered for each alternative:

- **Capital Cost.** Direct capital cost includes the cost of construction, labor, equipment, land, site development, and service. Indirect capital cost includes engineering fees, license and permit cost, startup and shakedown costs, and contingencies.
- **O&M Cost.** Annual O&M cost includes operating labor cost, maintenance materials and labor, pumping and treatment energy costs, monitoring costs, and all other post-construction costs necessary to ensure continuous effective operation of the alternative.

- **Total Present Worth.** The total present worth of each alternative is calculated at a discount rate of 7 percent and a time period of 30 years. Total present worth for each alternative includes capital cost plus the present worth of the annual O&M costs.

The cost estimates are considered order-of-magnitude level estimates (i.e., the cost estimates have an expected accuracy of +50 to -30 percent). The assumption of a 30-year operating period is based on EPA guidance and does not reflect any specific finding regarding the duration of the selected remedy.

### 10.7.1 Cost: Evaluation of Alternatives

Although there is no cost presented for the no-action alternative (Alternative 1), there have been and would continue to be substantial financial impacts on local water purveyors or their rate payers because of the continued migration of contamination to their production wells. Table 5 summarizes the estimated costs for Alternatives 2 through 4.

### 10.7.2 Cost: Comparison of Alternatives

Table 5 compares the cost of each alternative for capital costs, long-term O&M costs, and present worth. The short-term capital costs range from \$450,000 for Alternative 2 to \$6,292,000 for Alternative 4. The annual O&M costs range from \$90,000 for Alternative 2 to \$1,130,000 for Alternative 4. The present worth costs range from \$1,540,000 for Alternative 2 to \$18,109,000 for Alternative 4. Table 5 presents two costs, assuming use of either new or existing facilities. The costs for Alternatives 3 and 4 are higher than those presented in the FS because of the facilities associated with the additional western extraction included in the modified Alternative 3 (as described in Section 14).

## 10.8 State Acceptance

The State of California has provided comments and feedback to EPA throughout the RI/FS process for the South El Monte OU. In a letter dated September 25, 2000, the California Department of Toxic Substance Control (DTSC), as lead agency for the state, concurred with EPA's selected remedy. In addition, the RWQCB concurred with EPA's selected remedy in a letter dated September 12, 2000.

## 10.9 Community Acceptance

EPA received written comments on the Proposed Plan from numerous individuals, representatives of PRP companies, and other local stakeholders. EPA responded directly to the oral questions at the public meeting held in October 1999. All of the written comments received during the 60-day public comment period, along with EPA's responses to them, are presented in the Responsiveness Summary in Part III of this ROD. The transcript for the public meeting is available at EPA's Superfund Records Center at EPA's Regional Office in San Francisco, and locally at two information repositories: the West Covina Library and the Rosemead Library.

Several of the commenters stated their preference for Alternative 4 rather than EPA's preferred Alternative 3. However, by far the majority of the comments submitted to EPA expressed support for EPA's selection of Alternative 3. EPA does not believe that the additional contaminant removal provided by the Alternative 4 shallow zone source control justify the additional costs of this alternative. EPA's conclusion is that Alternative 3 (the preferred alternative) represents the most appropriate interim remedy for the South El Monte OU. None of the comments received warranted a change to the proposed remedy.

# 11 Selected Remedy

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After considering CERCLA's statutory requirements, the detailed comparison of the alternatives using the nine evaluation criteria, and public comments, EPA, in consultation with the State of California, has determined that the most appropriate remedy for this site is Alternative 3: intermediate zone control in western South El Monte OU. As described in Section 14 - Documentation of Significant Changes, the selected remedy is a slightly modified version of Alternative 3 presented in the FS and Proposed Plan. The performance standards and basic components of the selected remedy match those presented in the Proposed Plan and FS for Alternative 3, however, more facilities (e.g., extraction wells and treatment plants) will be required and the associated costs will be higher than previously assumed.

## Summary of Rationale for the Selected Remedy

Alternatives 1 and 2 provide the least overall protection of human health and the environment and do not fully comply with State and Federal requirements (ARARs). Considered in conjunction with EPA's Whittier Narrows OU remedy, Alternatives 3 and 4 both satisfy the remedial action objectives and satisfactorily meet the threshold criteria of overall protection of human health and the environment and compliance with State and Federal requirements. Alternatives 3 and 4 both address western intermediate zone contamination in the South El Monte OU. The intermediate zone contamination in the western portion of the South El Monte OU has impacted several production wells and EPA believes that controlling further contaminant migration in the intermediate zone is critical. Because the Whittier Narrows OU remedy will provide containment at the southern boundary of the contamination, the benefit of the additional shallow zone control provided by Alternative 4 would be to enhance mass removal, rather than migration control. However, Alternative 4 costs much more than Alternative 3 (see Table 5). For this containment remedy, EPA does not believe that additional mass removal benefits provided from the Alternative 4 shallow zone source control justify the additional cost.

The selected remedy, Alternative 3, meets the two Superfund threshold evaluation criteria, overall protection of human health and the environment and compliance with ARARs, and provides the best balance of the remaining Superfund evaluation criteria. EPA expects that this interim remedy will provide the basis for the final remedy for the South El Monte OU.

The selected remedy is an interim action and is focused on controlling the migration of contamination. Additional remediation may be needed to clean up VOC contamination remaining in the groundwater. EPA will use information collected during operation of the selected remedy to help determine the need for additional actions. Additional actions may also be required if facility-specific cleanup or source control actions in the South El Monte OU are not progressing as expected.

## 11.1 Description of the Selected Remedy

The selected remedy will be implemented using a performance-based approach. The performance-based approach specifies criteria ("performance criteria") that must be met while allowing flexibility in implementation. The performance criteria described below are designed to attain the RAOs for the South El Monte OU.

The selected remedy addresses the intermediate zone groundwater contamination present in the north-western half of the South El Monte OU. For purposes of describing the remedy, this contamination has been separated into two areas: 1) the central area of intermediate zone contamination and 2) the western area of intermediate zone contamination.

The central area of intermediate zone contamination refers to the contamination located in the vicinity of Monterey Park's (MP) production wells 12 and 15 (planned) and the San Gabriel Valley Water Company (SGVWC) Plant 8 wells (8A through 8F). Figures 3 and 5 show the intermediate zone contamination and the locations of these production wells in this area. This area contains the contamination that the original version of Alternative No. 3, presented in the FS and the Proposed Plan, was designed to contain.

The western area of intermediate zone groundwater contamination refers to the recently discovered intermediate zone contamination downgradient (west) of Monterey Park well No.12 in the vicinity of the Southern California Water Company (SCWC) wells San Gabriel 1 and 2, Garvey 1 and 2, and Earle 1 and additional Monterey Park wells 1, 3, 5, 6, 10 and Fern. Figures 3 and 5 show the intermediate zone contamination and the locations of the production wells in this area.

### **11.1.1 Performance Criteria for the Intermediate Zone**

*The remedial action shall provide sufficient hydraulic control to prevent migration of intermediate zone groundwater contaminated above chemical-specific ARARs into or beyond the Central Containment Area and into or beyond the Western Containment Area (defined in Section 11.1.3.2).*

Compliance with this criterion will be verified through monitoring of compliance wells for two parameters: hydraulic control and chemical specific ARARs. Wells to be used for monitoring compliance with chemical-specific criteria should be completed with screen lengths of 20 feet or less within the intermediate zone. Larger screened intervals may be appropriate for wells used to monitor compliance with hydraulic control requirements.

The remedial action must create inward hydraulic gradients at each of the Containment Areas. These hydraulic gradients must be sufficient to demonstrate that contaminated groundwater is captured by the extraction wells under all flow conditions (e.g., during both wet and dry periods in the hydrologic cycle).

Implementation of the remedial action cannot result in any adverse effects (i.e., increases in migration of contamination) to production wells that are not part of the remedial action. In addition, the remedial action must provide the required capture of contamination above chemical-specific ARARs without relying on the effects of wells that are not part of the remedial action.

Extracted intermediate zone groundwater will be treated by air stripping (with off-gas controls) or liquid-phase carbon adsorption. If alternative treatment technologies are identified, EPA will evaluate the alternative in accordance with the criteria specified in 40 C.F.R. Section 300.430 during remedial design.

### **11.1.2 Compliance with Performance Criteria**

Compliance with the performance criteria will be confirmed by quarterly sampling and water level monitoring at compliance wells. In the future, if monitoring data demonstrate that the performance criteria are unlikely to be violated in the short term, monitoring intervals may be lengthened. If it appears, based on trends in monitoring data, that the performance criteria are close to being violated, monitoring intervals may be shortened.

In the Central Containment Area, compliance with the performance criteria will initially be determined through monitoring of hydraulic gradients. After hydraulic containment has been achieved and contaminant concentrations downgradient from extraction wells have dropped below ARARs, the monitoring program will be expanded to include monitoring of compliance with chemical-specific ARARs at downgradient wells.

In the Western Containment Area, compliance with the performance criteria will be determined through monitoring of hydraulic gradients and chemical-specific ARARs. Contaminant concentrations in downgradient compliance wells must meet chemical-specific criteria at all times.

In both Containment Areas, EPA expects that groundwater containment actions will be implemented sufficiently upgradient of the chemical-specific compliance wells to provide a buffer zone to allow additional actions to be taken, if necessary, to ensure compliance, but close enough to ensure that groundwater contamination is being contained. Imminent exceedance of the performance criteria at compliance wells indicates that groundwater contamination is continuing to migrate and improved hydraulic containment is required. Additional requirements for compliance wells are included in Section 11.1.3.4.

### **11.1.3 Supplemental Explanation of Performance Criteria**

The following paragraphs provide additional explanation of the performance criteria.

#### **11.1.3.1 The “Intermediate” Zone**

The “intermediate” zone is a term intended to describe a general horizon within the aquifer underlying the South El Monte OU. During the course of the RI and development of the FS, the complex stratigraphy was simplified with generalizing assumptions about vertical intervals that appear to have similar characteristics throughout the area. However, actual subsurface conditions are not accurately described by terms that imply a consistent, well-layered system. The alluvial materials that underlie the South El Monte OU are heterogeneous and are made up of interfingering lenses of variable hydraulic properties.

The intermediate zone encompasses the coarser interval of the aquifer found beneath the shallow zone and the separating sequence. The shallow zone and separating sequence generally extend across the upper 200 feet of the subsurface, plus or minus 50 feet. The separating sequence is comprised of finer-grained materials that limit the vertical movement of groundwater between the shallow zone and intermediate zone. The intermediate zone is used extensively for groundwater production and generally extends across the first 200 to 300 feet of the aquifer beneath the separating sequence. In the context of this remedy, the intermediate zone extends to the deepest depths where groundwater contamination exceeds chemical-specific ARARs. In general, this is the upper 450 feet below ground surface. However, there may be isolated exceedances deeper in the aquifer. The terms shallow zone, separating sequence and intermediate zone are used in a manner consistent with their usage in the South El Monte OU Final Remedial Investigation and Feasibility Study Reports (Geosystem Consultants, 1998 and 1999, respectively).

#### **11.1.3.2 Central and Western Containment Areas**

The Central Containment Area includes production wells owned by the City of Monterey Park and the San Gabriel Valley Water Company. Intermediate zone groundwater contamination currently extends into and beyond the Central Containment Area. EPA’s objective in this portion of the intermediate zone is to ensure that contamination is contained within the Central Containment Area. For purposes of this remedial action, the Central Containment Area is defined as: (1) the area encompassed by five Monterey Park wells (Nos. 7, 8, 9, 12, and 15 (planned)) and six San Gabriel Valley Water Company Plant 8 wells (Nos. 8A, 8B, 8C, 8D, 8E, 8F), and (2) the intermediate zone groundwater contaminated above ARARs that is present within 1,500 feet downgradient of these wells. The remedial action must contain all intermediate zone groundwater contamination that is migrating into the Central Containment Area.

The Western Containment Area contains production wells owned by the City of Monterey Park and Southern California Water Company. Intermediate zone groundwater contamination currently extends into the Western Containment Area. EPA’s objective in this portion of the intermediate zone is to ensure that contamination does not migrate beyond the Western Containment Area. For the purposes of this remedial action, the Western Containment Area is defined as: (1) the area encompassed by the five Southern California Water Company wells (wells San Gabriel 1 and 2, Garvey 1 and 2, and Earle 1) and six Monterey Park wells (wells 1, 3, 5, 6, 10, and Fern), and (2) the extent of intermediate zone

groundwater contamination above ARARs in the vicinity of these wells. The remedial action must not allow intermediate zone groundwater contamination to spread beyond its current extent.

There are two approaches that appear to meet the performance criteria for each of the Containment Areas. The first relies exclusively on installation of new extraction wells upgradient of the existing production wells. These new wells would have to provide sufficient hydraulic control to capture contamination before it migrates into the production field. Under this scenario, compliance with the performance criteria will be determined at, or upgradient from, the production wells.

The second approach incorporates the production wells into the remedial action. If this second approach is used, it must be demonstrated that pumping from the production wells alone, or in combination with new wells, provides sufficient hydraulic control to meet the performance criteria. For the production wells to be considered as part of the remedial action, the responsible parties will have to provide assurances that the wells will operate in a manner that will ensure compliance with the performance criteria.

#### **11.1.3.3 Compliance Wells**

For any remedial approach, compliance will be monitored at wells located downgradient of each Containment Area. If a new extraction system is used in either Containment Area, compliance wells will also be placed at, or upgradient from, that Containment Area's production wells.

Compliance wells in the intermediate zone will be located within 2,000 feet of the area where extraction is occurring. Compliance well screens will generally be 20 feet or less. Concentrations in wells can vary as a function of screen length because of blending. Therefore, wells with screens longer than 20 feet are not generally considered appropriate for monitoring compliance with chemical-specific standards. However, longer screened intervals may be appropriate for wells used strictly to evaluate compliance with hydraulic control requirements.

#### **Central Containment Area**

In the Central Containment Area, compliance with performance criteria will initially be determined through monitoring of hydraulic gradients. Compliance wells will be located sufficiently close to the extraction locations to be capable of ensuring compliance with hydraulic control requirements. Water quality data from these wells will also be used to confirm that hydraulic control requirements are being met. After hydraulic containment has been achieved and contaminant concentrations downgradient from the extraction wells have dropped below ARARs, the monitoring program will be expanded to include monitoring of compliance with chemical-specific ARARs. Wells used to measure compliance with chemical-specific ARARs will be located downgradient of the area with groundwater contamination exceeding ARARs.

#### **Western Containment Area**

In the Western Containment Area, compliance with the performance criteria will be determined through monitoring of hydraulic gradients and chemical-specific ARARs. As with the Central Containment Area, wells used to measure compliance with chemical-specific ARARs will be located downgradient of the area with groundwater contamination exceeding ARARs. Wells used to monitor hydraulic control will be located sufficiently close to the extraction locations to be capable of ensuring compliance with hydraulic control requirements. Compliance wells must be sufficient in number and adequately located to ensure that contamination above ARARs does not migrate beyond the Western Containment Area.

#### **11.1.3.4 Adverse Effects**

The term "adverse effects" is included in the performance criteria to prevent the design and installation of a hydraulic control system that maintains concentrations at compliance wells below specified thresholds at the expense of production wells that are not part of the remedy. The principal adverse effect of concern is implementation of the remedial action in a manner that results in increased contaminant concentrations in existing production wells that are not part of the remedial action. This requirement

prevents, for example, the installation of new extraction wells immediately upgradient of the compliance wells and downgradient of production wells that are not part of the remedial action. The hydraulic control system must be protective of the environment and not result in adverse effects on production wells or allow continued spread of groundwater contamination.

## 11.2 Summary of the Estimated Remedy Costs

A detailed breakdown of the estimated capital, operating and maintenance (O&M), and present worth costs associated with the selected remedy is included in Table 7. The specific facilities assumed for estimating the costs of each of the remedy components are as follows (the actual number, size and location of facilities will be determined during remedial design):

- Groundwater Extraction- Installation of three new extraction wells in the Central Containment Area and three new extraction wells in the Western Containment Area to provide containment. An average total extraction rate of 10,000 gpm is assumed.
- Groundwater Treatment- Installation of wellhead treatment facilities at four locations (two in the Central Containment Area and two in the Western Containment Area). These facilities consist of air strippers with VGAC treatment of the off-gas. Treatment is assumed to remove contaminant concentrations to less than 50% of the chemical-specific criteria.
- End Use of Treated Groundwater- Conveyance pipelines to existing water purveyor facilities in the Central Containment Area and the Western Containment Area.
- Groundwater Monitoring- Installation of two additional multiport monitoring wells and implementation of a long-term monitoring program.

The present worth cost estimates assume a 7 percent (%) discount rate and a 30 year project duration. These cost estimates are expected to be accurate within +50 to -30%. The total estimated capital costs are \$5.88 million. The estimated annual O&M costs are \$0.84 million and the total present worth cost estimate is \$14.1 million. These costs assume land acquisition and installation of new facilities. However, there are also existing water purveyor facilities, including land, pumps, wells, and pipelines, that could be incorporated into the remedy. If agreements can be reached to use these existing facilities in place of installing new facilities, the estimated capital costs (and the present worth cost) of the remedy would go down by approximately \$2.22 million. Under this scenario, the total estimated capital costs are \$3.66 million, and the estimated present worth cost of the remedy is \$11.9 million.

These cost estimates assume that the treated water is delivered to water purveyors and that these purveyors pay \$45 per acre-foot for the water they receive. This reimbursement rate is an estimate of the purveyor's "avoided cost" of pumping the water from the ground and pressurizing it for delivery to their distribution system. Incorporating this reimbursement rate into the estimate of annual O&M reduces the estimated annual O&M costs by \$0.73 million. If the necessary agreements cannot be reached to deliver water to purveyors, annual O&M costs would increase by \$0.73 million.

The cost estimates also assume that the containment systems in the Western Containment Area would not need to operate as long as the systems in the Central Containment Area. The Central Containment Area cost estimate assumes an operating life of 30 years. Based on the groundwater modeling evaluations described in Section 14, it is assumed that one of the systems in the Western Containment Area would operate for 10 years and the other one for 5 years. However, it is difficult to predict the actual length of time that these systems will need to operate. If both systems only operated for 5 years, the total present worth cost estimate would drop to \$13.7 million. If both systems had to operate for as long as 15 years, the present worth cost estimate would increase to \$15.3 million.

## 11.3 Expected Outcomes of the Selected Remedy

Once implemented, this remedy will protect the existing beneficial uses of the currently uncontaminated aquifer downgradient of the compliance wells. The remedy will allow for continued use of the downgradient areas as a source of drinking water supply. It will also ensure that existing and planned production wells in the Central and Western Containment areas of the OU are protected.

Because the interim remedial action selected in this ROD is for containment and not restoration, no final cleanup standards have been established for restoration of groundwater. This means that at least a portion of aquifer (both the shallow and intermediate zones) upgradient of the compliance wells and associated extraction systems is expected to remain contaminated and unusable for a considerable length of time.

# 12 Applicable or Relevant and Appropriate Requirements (ARARs)

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Section 121(d) of CERCLA, 42 U.S.C. § 9621(d) requires that remedial actions at CERCLA sites attain (or justify the waiver of) any federal or state environmental standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate. These applicable or relevant and appropriate requirements are referred to as "ARARs." Federal ARARs may include requirements promulgated under any federal environmental laws. State ARARs may only include promulgated, enforceable environmental or facility-siting laws of general application that are more stringent or broader in scope than federal requirements and that are identified by the state in a timely manner.

An ARAR may be either "applicable," or "relevant and appropriate," but not both. If there is no specific federal or state ARAR for a particular chemical or remedial action, or if the existing ARARs are not considered sufficiently protective, then other guidance or criteria to be considered (TBCs) may be identified and used to ensure the protection of public health and the environment. The NCP, 40 C.F.R. Part 300, defines "applicable," "relevant and appropriate," and "to be considered" as follows:

- **Applicable requirements** are those cleanup standards, standards of control, or other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable.
- **Relevant and appropriate requirements** are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified in a timely manner and that are more stringent than federal requirements may be relevant and appropriate.
- **TBCs** consist of advisories, criteria, or guidance that EPA, other federal agencies, or states developed that may be useful in developing CERCLA remedies. The TBC values and guidelines may be used as EPA deems appropriate.

ARARs are identified on a site-specific basis from information about the chemicals at the site, the remedial actions contemplated, the physical characteristics of the site, and other appropriate factors. ARARs include only substantive, not administrative, requirements, and pertain only to onsite activities. Offsite activities must comply with all applicable federal, state, and local laws, including both substantive and administrative requirements, that are in effect when the activity takes place. There are three general categories of ARARs:

- **Chemical-specific ARARs** are health- or risk-based concentration limits, numerical values, or methodologies for various environmental media (i.e., groundwater, surface water, air, and soil) that are established for a specific chemical that may be present in a specific media at the site, or that may be discharged to the site during remedial activities. These ARARs set limits on concentrations of specific hazardous substances, pollutants, and contaminants in the environment. Examples of this type of ARAR include state and federal drinking water standards.

- **Location-specific ARARs** set restrictions on certain types of activities based on site characteristics. Federal and state location-specific ARARs are restrictions placed on the concentration of a contaminant or the activities to be conducted because they are in a specific location. Examples of special locations possibly requiring ARARs may include flood plains, wetlands, historic places, and sensitive ecosystems or habitats.
- **Action-specific ARARs** are technology- or activity-based requirements that are triggered by the type of remedial activities under consideration. Examples of this type of ARAR are RCRA regulations for waste treatment, storage, or disposal.

EPA has evaluated and identified the ARARs for the selected remedy in accordance with CERCLA, the NCP, and EPA guidance, including the CERCLA Compliance with Other Laws Manual, Part I (Interim Final), OSWER Directive 9234.1-01 (EPA, 1988a) and CERCLA Compliance with Other Laws Manual, Part II, OSWER Directive 9234.1-02 (EPA, 1989).

## 12.1 Chemical-Specific ARARs

The chemicals of potential concern for the South El Monte OU are compounds that have been detected in groundwater in the South El Monte OU. Table 6 lists these compounds and their chemical-specific ARARs.

### 12.1.1 Federal Drinking Water Standards

EPA has established MCLs, 40 C.F.R. Part 141, under the Safe Drinking Water Act (SDWA), 42 U.S.C. §§ 300f-j, to protect public health from contaminants that may be found in drinking water sources. MCLs are applicable at the tap for water that is delivered directly to 25 or more people or to 15 or more service connections.

Under the SDWA, EPA has also designated Maximum Contaminant Level Goals (MCLGs), 40 C.F.R. Part 141, which are health-based goals that may be more stringent than MCLs. MCLGs are set at levels, including an adequate margin of safety, where no known or anticipated adverse health effects would occur. MCLGs greater than zero are relevant and appropriate where multiple contaminants in groundwater or multiple pathways of exposure present unacceptable health risks (EPA, 1988b). One chemical detected in the South El Monte OU groundwater, 1,1,2-trichloroethane, has a non-zero MCLG that is more stringent than its MCL.

Under Section 300.430(f)(5) of the NCP, remedial actions must generally attain MCLs and nonzero MCLGs if the contaminated water is a current or potential source of drinking water. The 1995 Water Quality Control Plan for the Los Angeles Region (Basin Plan) designates all of the contaminated groundwater in the South El Monte OU as current and potential sources of drinking water. However, since this ROD selects an interim remedial action to contain contaminant migration, no final cleanup standards are established for the restoration of groundwater. Final cleanup standards will be established in a Final ROD. For this Interim ROD, EPA has determined that the federal MCLs and nonzero MCLGs listed in Table 6 are ARARs for any groundwater that is extracted and used for domestic, municipal, industrial, or agricultural purposes, and for any groundwater that is discharged to the environment. In addition, these MCLs and MCLGs are ARARs for currently uncontaminated groundwater in the intermediate zone downgradient of the existing compliance wells established by the remedial action (EPA, 1988a).

If treated groundwater is to be delivered into a public water supply, all legal requirements for drinking water in existence at the time that the water is served will have to be met because EPA considers the service of water to the public to be an offsite activity.

### **12.1.2 California Drinking Water Standards**

California has established state MCLs for sources of public drinking water, under the California Safe Drinking Water Act of 1976, Health and Safety Code (H&SC) §§ 4010.1 and 4026(c), California Code of Regulations (CCR) Title 22, §§ 64431 and 64444. Some state MCLs are more stringent than the corresponding federal MCLs. EPA has determined that the more stringent state MCLs are relevant and appropriate for the South El Monte OU. There are also some chemicals that lack federal MCLs. Where state MCLs exist for chemicals that lack federal MCLs, EPA has determined that the state MCLs are relevant and appropriate for the South El Monte OU. State MCLs apply to remedial actions in the South El Monte OU in the same manner as federal MCLs. Table 6 identifies the state MCLs that are ARARs for this remedial action.

If contaminants not listed in Table 6 are detected during implementation of the remedy, their state or federal MCLs (or non-zero MCLGs), whichever is lower, shall be ARARs for containment and treatment of the groundwater. If a contaminant is detected that does not have established MCLs or MCLGs (e.g., 1,4-dioxane), EPA will evaluate available standards and information, such as California Department of Health Services drinking water action levels, to identify a relevant and appropriate standard for the contaminant.

## **12.2 Location-Specific ARARs**

This ROD specifies performance criteria for the remedy. As such, the locations of remediation facilities (e.g., wells, treatment plants, and pipelines) are not specifically identified herein. Locations of remediation facilities will be determined during the remedial design, and will conform to the location-specific ARARs identified below.

### **12.2.1 Location Standards for TSD Facilities**

California Code of Regulations, Title 22, Section 66264.18 establishes location standards for Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDFs). Subsection 66264.18(a) prohibits the placement of TSDFs within 200 feet of a fault displaced during the Holocene epoch. Subsection 66264.18(b) requires that TSDFs located within a 100-year flood plain be capable of withstanding a 100-year flood. These standards are applicable to the construction of any new groundwater extraction and treatment facilities used as part of this remedial action.

### **12.2.2 Endangered Species Act**

The Endangered Species Act, 15 U.S.C. §§ 1531-1544, and implementing regulations, 40 C.F.R. § 6.302(h), 50 C.F.R. Parts 17, 222 and 402, are applicable to any remedial actions that impact a proposed or listed threatened or endangered species or destroy or adversely modify the critical habitat of a listed species. No endangered species are known or suspected to occur in the locations where remedial action facilities might be constructed. If, however, it appears during the implementation of the remedial action that construction activities or the discharge of treated groundwater might adversely affect a proposed or listed species, EPA will consult with the U.S. Fish and Wildlife Service (FWS) in accordance with 50 C.F.R. Part 402 and ensure that regulatory requirements are followed so that adverse impacts are avoided or mitigated.

### **12.2.3 California Fish and Game Code**

California Fish and Game Code sections 2080, 5650(a), (b), and (f), 12015, and 12016 prohibit the discharge of harmful quantities of hazardous materials into places that may deleteriously affect fish, wildlife, or plant life. These provisions are applicable if the remedial action will result in the discharge of treated groundwater to surface waters.

## **12.2.4 National Historic Preservation Act**

The National Historic Preservation Act and implementing regulations (16 U.S.C. § 470, 40 C.F.R. Part 6.301(b), 36 C.F.R. Part 800) require federal agencies or federal projects to take into account the effect of any federally assisted undertaking or licensing on any district, site, building, structure, or object that is included in, or eligible for, the Register of Historic Places. If remedial action is likely to have an adverse effect on any cultural resources that are on or near the South El Monte OU, EPA will examine whether feasible alternatives exist that would avoid such effects. If effects cannot reasonably be avoided, measures will be implemented to minimize or mitigate the potential effect.

No cultural resources are anticipated in the vicinity of facilities for this remedial action. However, during preliminary design, a complete review of all impacted areas will be made.

## **12.2.5 Archaeological and Historic Preservation Act**

This statute and implementing regulations, 16 U.S.C. § 469, 40 C.F.R. Part 6.301(c), establish requirements for the evaluation and preservation of historical and archaeological data that may be destroyed through alteration of terrain as a result of a federal construction project or a federally licensed activity or program. No sites of historical interest are anticipated in the vicinity of facilities for this remedial action. However, during preliminary design, a complete review will be made of impacted areas.

## **12.2.6 Historic Sites, Buildings, and Antiquities Act**

The Historic Sites, Buildings, and Antiquities Act, 16 U.S.C. §§ 461-467, 40 C.F.R. Part 6.301(a), requires federal agencies to consider the existence and location of landmarks on the National Registry of Natural Landmarks to avoid undesirable impacts on such landmarks. The remedial action is not anticipated to affect any of the facilities regulated under the act. However, during preliminary design, a complete review will be made of impacted areas.

# **12.3 Action-Specific ARARs**

## **12.3.1 Local Air Quality Management**

One VOC treatment technology that may be used is air stripping. Air emissions from air strippers are regulated by the California Air Resources Board, which implements the federal Clean Air Act (CAA), as well as the air pollution control requirements of the California H&SC, through local air quality management districts. Local districts may impose additional regulations to address local air emission concerns. The local air district for the South El Monte OU is the South Coast Air Quality Management District (SCAQMD). The SCAQMD has adopted several rules that are ARARs for air stripper emissions and construction activities.

SCAQMD Regulation XIII, comprising Rules 1301 through 1313, establishes new source review requirements. Rule 1303 requires that all new sources of air pollution in the district use best available control technology (BACT) and meet appropriate offset requirements. Emissions offsets are required for all new sources that emit in excess of one pound per day.

SCAQMD Rule 1401 requires that best available control technology for toxics (T-BACT) be employed for new stationary operating equipment, so that the cumulative carcinogenic impact from air toxics does not exceed the maximum individual cancer risk limit of 10 in 1 million ( $1 \times 10^{-5}$ ). Many of the contaminants found in the South El Monte OU groundwater are air toxics subject to Rule 1401.

SCAQMD Rules 401 through 403 are also ARARs for construction and operation of remedial action facilities. SCAQMD Rule 401 limits visible emissions from a point source. Rule 402 prohibits discharge

of material that is odorous or causes injury, nuisance, or annoyance to the public. Rule 403 limits downwind particulate concentrations.

### **12.3.2 Federal Clean Water Act and California Porter-Cologne Water Quality Act**

California's Porter-Cologne Water Quality Act incorporates the requirements of the federal Clean Water Act (CWA) and implements additional standards and requirements for surface and groundwaters of the state.

#### **12.3.2.1 Water Quality Control Plan for the Los Angeles Region (Basin Plan)**

The RWQCB formulates and enforces water quality standards through a Basin Plan. The Basin Plan identifies the beneficial uses of surface and groundwaters in the San Gabriel River watershed and establishes water quality objectives necessary to protect these beneficial uses. Water quality objectives impose limitations on receiving waters, rather than discharges, and are applicable to any water body that receives discharge from remedial activities in the South El Monte OU.

The selected remedial action could result in the discharge of treated groundwater to the Rio Hondo. Table 2-1 of the Basin Plan identifies the following beneficial uses for the Rio Hondo above the Rio Hondo Spreading Grounds:

- Municipal and domestic supply (potential beneficial use)
- Groundwater recharge (intermittent beneficial use)
- Water contact recreation (intermittent beneficial use)
- Noncontact water recreation (existing beneficial use)
- Warm freshwater habitat (potential/intermittent beneficial use)
- Wildlife habitat (existing beneficial use)

Because municipal and domestic water supply is a potential beneficial use of these surface waters, Federal and State MCLs and MCLGs are water quality objectives for the Rio Hondo, except where the California Toxics Rule, 33 U.S.C. § 131.38 (below) imposes more stringent criteria. In addition, the following water quality objectives from the Basin Plan are ARARs for the Rio Hondo in the SEMOU vicinity:

- Total Dissolved Solids: 750 mg/L
- Sulfate: 300 mg/L
- Chloride: 150 mg/L
- Boron: 1.0 mg/L
- Nitrogen ( $\text{NO}_3\text{-N} + \text{NO}_2\text{-N}$ ): 8 mg/L

The Basin Plan also establishes water quality objectives for groundwater in the Main San Gabriel Basin (Table 3-10). These water quality objectives are applicable as water quality objectives if the remedial action will result in a discharge that impacts groundwater.

#### **12.3.2.2 California Toxics Rule**

In May 2000, EPA established numeric criteria for priority toxic pollutants in California surface waters. As amended, 33 U.S.C. § 131.38 establishes water quality criteria for 126 pollutants, including many of the VOCs found in groundwater at the South El Monte OU. If it is determined that the remedial action will discharge treated groundwater to the Rio Hondo, EPA will use these water quality criteria to develop water quality-based effluent limitations for the discharge.

### **12.3.2.3 State Water Resources Control Board Resolution 68-16**

The Basin Plan also incorporates the State Water Resources Control Board (SWRCB) policy "Statement of Policy with Respect to Maintaining High Water Quality in California" (Resolution 68-16). Resolution 68-16 requires that existing water quality be maintained unless it is demonstrated that a change will benefit the people of California, will not unreasonably affect present or potential uses, and will not result in water quality less than prescribed by other state policies. Any activity that may increase the volume or concentration of a waste discharged to surface or groundwater is required to use the "best practicable treatment or control."

Resolution 68-16 is applicable to discharges of treated groundwater. If treated water is to be discharged to the Rio Hondo, the RWQCB may require an evaluation of the potential impact of nitrate and TDS contained in treated groundwater on receiving waters and investigate alternative discharge options. If water quality impacts are minimal and alternative discharge options infeasible, the RWQCB may allow the discharge to the Rio Hondo.

### **12.3.2.4 State Water Resources Control Board Resolution 92-49**

Subsection III.G of the SWRCB's "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304" (Resolution 92-49) requires attainment of background water quality or, if background levels cannot be restored, the best quality of water that is reasonable. Resolution 92-49 is not an ARAR because this is an interim remedial action to contain the spread of contamination, rather than a final action to restore groundwater in the South El Monte OU.

### **12.3.2.5 Standards Applicable to CERCLA Section 104(b) Discharges to Surface Waters**

Site investigation activities undertaken pursuant to CERCLA § 104(b) are considered to be removal actions. It is EPA policy that removal actions "comply with ARARs to the extent practicable, considering the exigencies of the circumstances." (55 Fed. Reg. 8756).

It is possible that certain site investigation activities will take place during remedial design, which will result in temporary high-flow, high-volume discharges of contaminated groundwater (e.g., discharges from aquifer testing of extraction wells). EPA has considered the best available technology economically achievable (BAT) for treatment and disposal of these discharges. The three disposal options that EPA considered are: (1) onsite storage and disposal at a Resource Conservation and Recovery Act (RCRA)-approved hazardous waste facility, (2) discharge to a sanitary sewer for treatment at a wastewater treatment plant, and (3) onsite treatment and discharge to surface water channels. EPA has concluded that compliance with chemical-specific ARARs is not practicable, considering the exigencies of the circumstances, for many temporary high-flow, high-volume discharges.

EPA has determined that compliance with chemical-specific ARARs is practicable and necessary for CERCLA § 104(b) activities that do not result in temporary high-flow, high-volume discharges. EPA will determine the application of chemical-specific ARARs to CERCLA § 104(b) activities on a case-by-case basis. Where practicable, these discharges must comply with ARARs.

### **12.3.3 California Hazardous Waste Management Program**

The federal RCRA establishes requirements for the management and disposal of hazardous wastes. In lieu of the federal RCRA program, the State of California is authorized to enforce its Hazardous Waste Control Act, and implement regulations (CCR Title 22, Division 4.5), subject to the authority retained by EPA in accordance with the Hazardous and Solid Waste Amendments of 1984 (HSWA). California is responsible for permitting treatment, storage, and disposal facilities within its borders and carrying out

other aspects of the RCRA program. Some of the Title 22 regulations are applicable to the generation and disposal of hazardous wastes in the South El Monte OU.

#### **12.3.3.1 Hazardous Waste Generator Requirements**

CCR Title 22 establishes requirements applicable to generators of hazardous waste. Implementation of the remedial action may generate hazardous waste as a result of ground-water monitoring and well installation (e.g., contaminated soil and groundwater and used personal protective equipment). Hazardous waste may also be generated as a result of ground-water treatment to remove VOCs (e.g., spent carbon). These requirements are applicable to remedial actions in the South El Monte OU.

The preamble to the NCP clarifies that when noncontiguous facilities are treated as one site, the movement of hazardous waste from one facility to another is subject to RCRA manifest requirements (55 Fed. Reg. 8691). Manifest requirements are ARARs in the event that the remedial action involve multiple water treatment units at different locations and require the movement of hazardous wastes (e.g., spent carbon) between these locations.

#### **12.3.3.2 Land Disposal Restrictions**

CCR Title 22 defines hazardous wastes that cannot be disposed of to land without treatment. Land disposal requirements are applicable to the disposal of spent carbon generated during the treatment of groundwater for removal of VOCs, if carbon adsorption is used, and the disposal of residuals associated with groundwater monitoring and well installation (e.g., contaminated soil and groundwater, used personal protective equipment).

#### **12.3.3.3 Hazardous Waste TSD Facility Requirements**

CCR Title 22, Division 4.5, Chapter 14, specifies Hazardous Waste TSDF requirements that regulate the design, construction, operation, and closure of RCRA-permitted TSDFs. Since the contaminated groundwater is sufficiently similar to RCRA hazardous wastes, Title 22 TSDF requirements are relevant and appropriate for the design, construction, operation, and closure of any ground-water treatment systems. The Title 22 ARARs include the substantive requirements of the following provisions:

- Section 66264.14: Security Requirements
- Section 66264.25: Seismic and Precipitation Standards
- Section 66264.94: Groundwater Protection Standards
- Sections 66264.111-115: Closure of Treatment Units
- Sections 66264.170-178: Use and Management of Containers
- Sections 66264.600-603: Standards for Miscellaneous Treatment Units

### **12.4 ARARs Waivers**

This interim remedial action shall comply with all ARARs described in this section. Because this is an interim action for containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater remaining onsite. These ARARs will be addressed in the Final ROD for the South El Monte OU.

# **13 Statutory Determinations**

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Under CERCLA Section 121, EPA must select remedies that are protective of human health and the environment, comply with applicable or relevant and appropriate requirements (unless a statutory waiver is justified), are cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ, as a principal element, treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes. The following sections discuss how the selected remedy meets these statutory requirements.

## **13.1 Protection of Human Health and the Environment**

The selected remedy (in conjunction with the interim remedial action in the downgradient Whittier Narrows OU) will protect human health and the environment by limiting further downgradient migration of contaminated groundwater and preventing the existing groundwater contamination from impacting current groundwater users. The remedy will also remove contaminant mass from the aquifer. The selected remedy will reduce potential risks by decreasing the likelihood and magnitude of future exposure to contaminated groundwater. Contaminant concentrations in the groundwater in the areas to be addressed by the remedy are currently well above acceptable levels. Available treatment technologies are technically feasible and proven effective in meeting ARARs for VOCs in the treated groundwater and air. Implementation of the remedy will not pose unacceptable short-term risks. In addition, no adverse cross-media impacts are expected.

## **13.2 Compliance with ARARs**

The selected remedy shall comply with all ARARs described in Section 12 of this interim ROD. Because this is an interim action for the containment of groundwater contamination, EPA has not established chemical-specific ARARs for restoration of groundwater.

## **13.3 Cost-Effectiveness**

EPA believes the selected remedy is cost-effective for addressing migration of contaminated groundwater in the South El Monte OU. Section 300.430(f)(ii)(D) of the NCP requires EPA to determine cost-effectiveness by evaluating the cost of an alternative relative to its overall effectiveness. Effectiveness is defined by three of the five balancing criteria: long-term effectiveness, short-term effectiveness, and reduction of toxicity, mobility and volume through treatment. The overall effectiveness is then compared to cost to ensure that the selected remedy is cost-effective.

The estimated present worth cost of the selected remedy is \$14.1 million. The selected remedy is the lowest cost alternative that meets EPA's RAOs for the South El Monte OU. The less expensive groundwater-monitoring only alternative (Alternative 2) does not actively contain migration of groundwater contamination in the South El Monte OU.

## **13.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable**

As an interim remedial action, EPA has determined that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner in the South El Monte OU. EPA has also determined that the selected remedy provides the best balance of

tradeoffs in terms of the five balancing criteria, while also considering the statutory preference for treatment as a principal element and considering state and community acceptance.

The selected remedy satisfies the long-term effectiveness criterion by removing VOC contamination from the groundwater and destroying the VOCs during carbon regeneration. Groundwater containment through extraction effectively reduces the mobility and volume of and potential for exposure to site-related contamination. The selected remedy does not present any short-term risks that can not be readily mitigated and EPA expects that the implementability issues associated with the selected remedy can be resolved in a timely manner.

### **13.5 Preference for Treatment as a Principal Element**

By treating the contaminated groundwater through air stripping or liquid-phase carbon adsorption, the selected remedy addresses the site contamination through the use of treatment technologies. By using treatment as a component of the interim remedial action, the statutory preference for remedies that employ treatment as a principal element is supported.

### **13.6 Five-Year Reviews**

Because the remedy will result in hazardous substances remaining onsite above levels that allow for unlimited use and unrestricted exposure, EPA shall conduct a review of the remedy at least once every 5 years after initiation of remedial action. The review will assess whether the remedy continues to provide adequate protection of human health and the environment. If it is determined that the remedy is no longer protective of human health and the environment, then modifications to the remedy will be evaluated and implemented as necessary.

# 14 Documentation of Significant Changes

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The Proposed Plan for the South El Monte OU was released for public comment in September 1999. The Proposed Plan identified Alternative 3, Intermediate Zone Control in the Western South El Monte OU, as the Preferred Alternative for addressing groundwater contamination in the South El Monte OU. EPA received and reviewed a large number of written and verbal comments submitted during the public comment period. During this period, EPA was made aware of additional data on the extent of groundwater contamination in the intermediate zone in the western portion of the South El Monte OU. This data indicated that the intermediate zone groundwater contaminated in excess of MCLs had migrated further west than was depicted in the FS Report (Geosystem Consultants, 1999) and Proposed Plan. EPA confirmed the larger extent of intermediate zone contamination by installing and sampling two new multiport monitoring wells in the spring of 2000. Because of this migration, the western boundary of the South El Monte OU described as Walnut Grove Avenue in the Feasibility Study and Proposed Plan, has moved with the contamination to the vicinity of San Gabriel Boulevard.

Although the change in the extent of intermediate zone contamination does not require changes to the general structure of the preferred alternative, it does impact the locations and cost of the facilities that will be required to meet the RAOs. In the Proposed Plan, the preferred alternative only discussed the need for containment in the vicinity of the San Gabriel Valley Water Company (SGVWC) and Monterey Park well fields (referred to as the "Central Containment Area" in Section 11). The discovery of significant contamination downgradient of these locations required EPA to evaluate the potential need for additional downgradient containment to meet the migration control objectives of the remedy. To assess the magnitude and location of potential supplemental containment, EPA performed groundwater modeling simulations. The groundwater modeling results are described in a memorandum (EPA, 2000) and summarized below.

To develop a revised containment scenario, the extraction scenario simulated for Alternative No. 3 in the FS Report (Geosystem Consultants, 1999) was modified to include additional pumping further west (referred to as the "Western Containment Area" in Section 11) at the downgradient edge of the plume. In the modified containment scenario, consistent with the simulations performed for the FS, all of the extraction is provided by existing water purveyor wells. However, this containment could instead be provided by extraction from new wells located upgradient of the existing wells. The modified containment scenario simulation includes the following:

- Operation of existing production wells at close to maximum capacity on a continuous basis if they have wellhead treatment systems currently operating or if the water purveyors have plans to install wellhead treatment systems in the near future. These wells include Monterey Park's wells 5, 12 and 15; selected SGVWC Plant 8 (8B, 8C, and 8D) wells; and SCWC's San Gabriel 1 and 2 wells
- Operation of selected additional purveyor wells as necessary to meet peak demands or to maintain system pressures
- Sufficient extraction from existing production wells to match historic average annual production rates for each purveyor's system
- Operation of EPA's planned remedy in the Whittier Narrows OU.

The average extraction rates for each of the wells assumed to be operating as part of the modified Alternative No. 3 are summarized as follows:

|                                      |                  |
|--------------------------------------|------------------|
| • Monterey Park No. 5 well-          | 1,620 gpm        |
| • Monterey Park No. 12 and 15 wells- | 4,050 gpm        |
| • SGVWC Plant 8 wells-               | 2,500 gpm        |
| • SCWC San Gabriel 1 and 2 wells-    | <u>1,850 gpm</u> |
| TOTAL-                               | 10,020 gpm       |

It should be noted that the extraction rates simulated for the Monterey Park's No. 12 and 15 wells are higher than those used in the simulations for Alternative No. 3 performed for the South El Monte OU FS Report (Geosystem Consultants, 1999). Figure 5 shows the simulation results for the modified Alternative No. 3. The figure shows the simulated paths of groundwater particles within and around the interpreted area of VOC contamination in the intermediate zone of the South El Monte OU. The simulated particle tracks presented in Figure 5 confirm that the extraction wells included in the original Alternative No. 3 (i.e., Monterey Park Nos. 12 and 15; SGVWC's Plant 8 wells) provide containment of the upgradient (i.e., the "Central Area") intermediate zone contamination. These extraction wells would also capture some of the contamination that has migrated downgradient. The remainder of the contamination that has migrated further downgradient (the "Western Area") beyond the capture zone of these wells can be contained by extraction from the Monterey Park No. 5 and the Southern California Water Company (SCWC) San Gabriel Nos. 1 and 2 wells.

These simulation results show that containment can be achieved using extraction from existing wells. As noted above, containment could also be achieved by using new wells installed upgradient of the existing wells. Two of the existing well clusters included in the modified Alternative No. 3 simulations were not included in the original Alternative No. 3 presented in the Proposed Plan. These are the Monterey Park No. 5 and SCWC San Gabriel Nos. 1 and 2 wells. Because these wells are located downgradient of the primary containment provided by the upgradient Monterey Park/SGVWC wells, they may not need to be operated for as long to provide containment of this downgradient contamination.

The length of time that the additional containment systems would need to operate has been estimated using groundwater velocities derived from the simulation illustrated in Figure 5. The simulated groundwater velocities in the downgradient western area are about 400 feet/year and suggest that all of the groundwater would be captured by Monterey Park well No. 5 within about 6 years. Because retardation of contaminants such as PCE likely occurs in the intermediate zone, the estimated time to remove the contamination from the intermediate aquifer would be longer, approximately 10 years. This assumes a retardation factor of 1.8, as was used in the FS Report (Geosystem Consultants, 1999). Less time should be required to remove the contamination migrating towards the SCWC San Gabriel 1 and 2 wells because these wells capture a smaller area of contamination. Using the groundwater velocity and retardation factor described above, the estimated operational time frame for the SCWC wells is 5 years. These estimates are based on a number of assumptions; the actual amount of time needed to operate the containment systems in the Western Containment Area could be considerably different. However, the times cited above provide an adequate basis for estimating costs.

### Revised Remedy Costs

The estimated present worth cost of the modified Alternative No. 3, assuming use of all new facilities (i.e., none of the existing water purveyor wells, pumps, land or other facilities would be used in the containment systems), is \$14.1 million (see Table 7). This cost estimate relies on all of the same cost assumptions and cost factors used in developing costs for Alternative No. 3 in the FS Report (Geosystem Consultants, 1999), and includes the costs of installing and operating additional facilities in the vicinity of Monterey Park No. 5 and SCWC San Gabriel Nos. 1 and 2. The cost estimate assumes that these facilities would need to operate for 10 and 5 years, respectively. The estimated present worth cost of the

modified Alternative No. 3 would be reduced to \$11.9 million if it is assumed that existing facilities are used (EPA 2000).

The actual amount of time that the supplemental containment systems for the Western Containment Area would need to operate is uncertain. Accordingly, the actual costs of the remedy could be higher or lower than those described above. For example, if both containment systems only needed to operate for 5 years, the estimated cost of the remedy would be \$13.7 million, rather than \$14.1 million. Conversely, if both wellhead treatment facilities had to operate for 15 years, the estimated cost of the remedy would increase to \$15.3 million (EPA 2000).

**Part III**  
**Responsiveness Summary**

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# Part III – Responsiveness Summary

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This Responsiveness Summary portion of the interim Record of Decision (ROD) presents the U.S. Environmental Protection Agency's (EPA) responses to the written and significant oral comments received at the public meeting and during the public comment period. The section is divided into responses to written comments and responses to oral comments. Comments are expressed in italics, EPA's responses in plain text.

## 1 Responses to Written Comments

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This section provides responses to written comments received by EPA during the public comment period. Written comments were received from eight local agencies and cities (Cities of Monterey Park, Pico Rivera, and South El Monte; Main San Gabriel Basin Watermaster; San Gabriel Basin Water Quality Authority; Upper San Gabriel Valley Municipal Water District; Southeast Water Coalition [SEWC]; the Water Replenishment District); two local water purveyors (San Gabriel Valley Water Company and Southern California Water Company); seventeen individual South El Monte OU potentially responsible parties and their representatives (Aircraft Stamping Co., Inc.; APW-Electronic Solutions; Artistic Polishing and Plating, Inc.; Art Weiss Industrial Properties; Bassett & Obbink; Clamp Manufacturing Company, Inc.; CraneVeyor Corporation; Eagle Metal Finishing Co., Inc.; Earl Butler and Associates; EEMUS Manufacturing Corp; Ray Finkle; Jebbia Trust; Roc-Aire Corporation; Seachrome Corporation; Smittybilt, Inc.; Tri-Fitting Mfg. Company; and Robert Glenn Vanderbosch); Geosystem Consultants, Inc. (on behalf of the South El Monte OU Participants); two individuals (R. Brown and Allan Hill); and Congressman Matthew G. Martinez.

### 1.1 Responses to Comments from the City of Monterey Park

**Monterey Park Comment No. 1.** *Thank you for the presentation made on October 27, 1999 about the South El Monte Operable Unit (SEMOU) treatment alternatives. We appreciate the opportunity to hear the status and the progress of the SEMOU. We support the EPA's choice of Alternative 3. We feel that it provides the required control for the intermediate contamination and the flexibility to allow the choice to either treat the shallow contamination at South El Monte or in Whittier Narrows, which ever is more cost effective.*

*The model that we have all seen for the past three years shows contaminant flow coming west in the intermediate aquifer from the SEMOU. The City of Monterey Park Water System (City) has 11 drinking water supply wells located in the city of Rosemead, south of Garvey Ave. and east of San Gabriel Blvd. In the past we have had a history of generally low levels of VOC contamination in the City's wells. Unfortunately, in 1995, the PCE level for Well no. 12 (2,500 gpm) went to a level that it was placed on standby status. The PCE level currently stands at 34 µg/L.*

*In addition, Well no. 6 (700 gpm) was put on standby status in October 1999 because of TCE contamination and Fern Well (1,800 gpm) may have to be put on standby status this winter because of PCE contamination. In September 1998, Well no. 5 (2,100 gpm) was taken out of service due to PCE contamination. It was put back in service in September 1999 with a GAC treatment plant (cost \$680,000).*

*We look forward to working with you for solutions to contain and eliminate the contamination in SEMOU in a timely manner. We are planning to start construction of a treatment plant at the City's Well no. 12 within the next year. As I discussed with Ms. Adams on the 27th, anything that can be done to assist the RPRs in SEMOU to receive some type of credit for financial assistance for this project would help this portion of the remedy progress faster. As we first wrote you in April 1997, we have a concern that the migrating contamination from SEMOU will continue to reduce the number of wells available to us. This would be a big problem for us because our only water source is from our wells.*

**EPA's Response.** EPA understands the significant financial and operational impacts of South El Monte OU contamination on the City's water supply wells and believes that the selected remedy will ensure that the City has access to clean water over the long-term. EPA will continue to accelerate implementation of the selected remedy in the South El Monte OU where possible. EPA supports the use of existing water supply wells and facilities where feasible to meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including the City, to reach these agreements in a timely manner.

## 1.2 Responses to Comments from the City of Pico Rivera

**Pico Rivera Comment No. 1.** *Under Alternative 3, proposed wells would be located on the westerly portion of the South El Monte Operable Unit (SEMOU) where they would provide containment of contaminated groundwater moving towards groundwater pumping centers to the west.*

*Under Alternative 4, the wells would be located within the central portion (between Rosemead Boulevard and Chico Avenue) where they would also provide containment of contaminated groundwater migrating through the Whittier Narrows.*

*Perhaps location of wells in the central portion as a Revision to Alternative 3 would be more effective. Ideally, for maximum effectiveness, wells should be located in areas where the shallow and intermediate zones of VOC contamination overlap.*

**EPA's Response.** The selected remedy (Alternative 3) includes containment in the western portion of the South El Monte OU because this is where the contamination has already migrated. If containment were implemented in the central portion of the OU, large amounts of contamination would continue to migrate downgradient, impacting additional water supply wells in clean areas. Thus, the containment would be less effective. Alternative 4 additionally called for pumping in the central portion of the OU. This pumping would primarily act as a source control measure, rather than containment.

**Pico Rivera Comment No. 2.** *Assuming completion of the ROD for the Whittier Narrows OU by mid-2000, construction on the plan may not be completed until 2003. It is estimated that the Whittier Narrows plan, which is running approximately one year ahead of the proposed South El Monte Plan, will be completed on or around mid-2002.*

**Comment:** *Since migration of contaminated groundwater will continue southerly for two to three years if Alternative 3 is selected, perhaps installation of an emergency interim containment remedy within the Whittier Narrows OU would be appropriate.*

**EPA's Response.** EPA expects that the Whittier Narrows OU remedy will be operational by the end of 2001. There is currently an interim containment action operated by the San Gabriel Valley Water Quality Authority just north of San Gabriel Boulevard in Whittier Narrows to contain the most contaminated portion of the shallow zone. EPA is planning to perform additional interim extraction in the shallow zone in Whittier Narrows in 2000.

**Pico Rivera Comment No. 3.** *How will the matter of adjudicated water rights be addressed for any water drawn?*

**EPA's Response.** EPA's preference is for local water purveyors to be the recipients of treated water from the South El Monte OU remedy. If this is the case, those water purveyors would be expected to count any water they accept from the project towards their water rights allocation. If agreements cannot be reached to provide the treated water to local water purveyors, the water will most likely be recharged to the aquifer within the San Gabriel Basin. In either of these scenarios, EPA expects that arrangements will be made with local water management agencies to address groundwater management issues.

**Pico River Comment No. 4.** *Will all water purveyors within the Whittier Narrows OU be afforded water at \$45 per acre foot as is contemplated within the South El Monte OU?*

**EPA's Response.** Currently, EPA is expecting purveyors, and perhaps other entities, would bid on operation of the treatment facilities for the Whittier Narrows OU. The operator would be expected to pay all of the necessary fees to local water agencies, including fees for replacement or replenishment water for any water they accept that is in excess of their water right for that year. EPA also expects that the operator would use the treated groundwater as a domestic water supply.

The cost of \$45 per acre-foot is used for cost estimating purposes only and is based on a rough estimate of the "avoided cost" for a purveyor that is no longer paying the costs to pump their own water to the ground surface.

**Pico Rivera Comment No. 5.** *Would EPA consider remodeling existing purveyor wells to increase extraction rates?*

**EPA's Response.** The South El Monte OU Feasibility Study does include the costs of retrofitting existing wells with new pumps to provide the appropriate capacity for the remedial pumping. In the Whittier Narrows OU, EPA concluded that there were not any existing purveyor wells ideally located to provide efficient containment of the groundwater contamination.

## 1.3 Responses to Comments from the City of South El Monte

**South El Monte Comment No. 1.** *I have been directed to draft a letter notifying the United State Environmental Protection Agency of the South El Monte City Council's decision to support alternative three, the USEPA's preferred alternative, from among the four cleanup alternatives presented during the community meeting held Wednesday, October 27, 1999, at the South El Monte High School.*

*The action was taken at the regularly scheduled November 22, 1999, meeting. A letter signed by mayor Art Olmos will follow. This letter is being sent to you in order to have the City Council's decision on the record prior to the close of the comment period.*

**EPA's Response.** Comment noted. EPA has selected Alternative No. 3 for the South El Monte remedy in this Interim ROD. The majority of the written comments received by EPA during the public comment period were in support of Alternative No. 3.

## 1.4 Responses to Comments from the Main San Gabriel Basin Watermaster

**Watermaster Comment No. 1.** *Watermaster strongly supports the use of existing water purveyors facilities as a part of the remedial action. Use of wells owned by San Gabriel Valley Water Company and*

*the City of Monterey Park will reduce project costs while assuring a reliable water supply for the purveyors and their customers. The recharge of treated water is not a preferred alternative, especially in the downstream areas of the Main San Gabriel Basin. The recharge capabilities, which are required for the spreading of storm runoffs and Replenishment Water, will likely become markedly diminished with the constant spreading of treated water. In addition to losses in the capture of storm water, the constant flow of treated water will require a mitigation program to control vectors, such as midges. The utilization of the treated water by the two Producers will avoid these problems.*

**EPA's Response.** Comment noted. EPA also strongly prefers that local water purveyors be the recipients of treated water from the South El Monte OU remedy. In addition, EPA supports the use of existing water supply wells and facilities where feasible to meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities. EPA will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including the water purveyors and Watermaster, to reach these agreements in a timely manner.

## 1.5 Responses to Comments from the San Gabriel Basin Water Quality Authority

**Water Quality Authority Comment No. 1.** *In general, WQA supports EPA's Proposed Plan for the SEMOU. The containment specified for the intermediate zone in the northwestern portion of the operable unit will be essential in arresting the flow of contaminants and protecting down gradient groundwater production centers. The three extraction wells and associated treatment facilities that make up the intermediate zone containment barrier must be implemented immediately to properly mitigate this significant threat. In addition, WQA is committed to assuring that the remedy include, to the extent possible, existing water supply facilities so that impacts to the local water supply are minimized in conjunction with the cleanup.*

**EPA's Response.** Comment noted. EPA agrees that rapid implementation of the South El Monte OU remedy is critical given the existing impacts on water supply wells. EPA will continue to accelerate implementation of the selected remedy in the South El Monte OU where possible. EPA supports the use of existing water supply wells and facilities where feasible to meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders to reach these agreements in a timely manner.

**Water Quality Authority Comment No. 2.** *WQA also acknowledges that an integrated solution is required to address the contamination found in both the SEMOU and Whittier Narrows Operable Unit (WNOU). Furthermore, WQA agrees that when implemented, the proposed extraction barrier for the WNOU will provide the necessary containment to protect the central basin from the contamination emanating from a portion of the SEMOU. However, WQA is concerned that the complexities associated with the comprehensive WNOU barrier remedy may significantly delay its implementation.*

*In light of the uncertainties surrounding the implementation of the WNOU barrier, WQA has and will continue to support actions that can be quickly implemented to remove sources of contamination in SEMOU as well as containing significant threats to the Central Groundwater Basin. These goals prompted the implementation of the early action extraction barriers in SEMOU and WNOU. The SEMOU early action extraction barrier is currently in operation while the WNOU early action extraction barrier is scheduled to be operational in December 1999. Continued operation of both these projects, in conjunction with the comprehensive remedy proposed by the EPA, will be essential to minimizing the threat to Central Basin.*

**EPA's Response.** Although there are a number of factors that make implementation of the Whittier Narrows OU remedy quite complex, EPA is attempting to accelerate implementation of the Whittier Narrows OU remedy and expects it to be operational within the next 12 months. In the interim, EPA continues to support installation and operation of early actions that address the most critical areas of contamination. The early action that WQA is currently operating in Whittier Narrows addresses the most highly contaminated portion of the shallow zone in Whittier Narrows and should continue to operate until the full-scale Whittier Narrows remedy is available to take over containment at this location.

**Water Quality Authority Comment No. 3.** *Although EPA has chosen not to include the SEMOU early action extraction barrier in its preferred alternative for the SEMOU, it has in the past, supported and encouraged supplemental source removal actions that would complement actions taken under CERCLA. EPA's prior support of the SEMOU early action extraction barrier was essential in getting the project implemented and will be essential in keeping it operational since long-term funding remains unsecured. Because the South El Monte early action extraction barrier is primarily a source removal action, additional commitments by both the EPA and the Los Angeles Regional Quality Control Board (Regional Board) will be necessary to mandate continuance of the barrier operation under the Regional Board's site cleanup authority. Such enforcement actions will isolate responsibility to those companies directly linked to the groundwater contamination now being cleaned up by the extraction barrier.*

**EPA's Response.** EPA fully supports implementation of source control actions at individual facilities or groups of facilities in the South El Monte OU, including WQA's shallow barrier project. EPA will continue to work with the Regional Water Quality Control Board to ensure that appropriate site-specific cleanup occurs at South El Monte OU facilities. These types of source removal actions are critical to EPA's long-term remedial goals in the South El Monte OU and throughout the San Gabriel Basin.

**Water Quality Authority Comment No. 4.** *In summary, WQA supports a combination of EPA's preferred alternative (alternative No. 3), the SEMOU early action extraction barrier, the WNOU early extraction barrier, and EPA's WNOU comprehensive barrier as the remedial actions that are necessary to address the contamination present within the SEMOU and WNOU. These actions are best implemented using a combination of regulatory vehicles, including EPA enforcement, EPA fund lead, Regional Board enforcement and voluntary actions.*

**EPA's Response.** Comment noted. EPA concurs with the ongoing need for both regional containment actions as EPA is implementing in the Whittier Narrows and South El Monte OUs and localized source control actions in contaminant source areas.

## **1.6 Responses to Comments from the Upper San Gabriel Valley Municipal Water District (USGVMWD)**

**USGVMWD Comment No. 1.** *The Upper District strongly encourages the U.S. Environmental Protection Agency (USEPA) to adopt Alternative 4, the intermediate zone control in western SEMOU and shallow zone source control for the following reasons:*

- 1. Shallow zone extraction would remove significant high-level contamination in a relatively short period of time. This will reduce the impact of continued contaminant migration towards the Whittier Narrows. Shallow zone source control satisfies the primary balancing criteria as listed in the proposed plan. It is our feeling that Alternative 4 will reduce costs in the long-run.*
- 2. The increased estimate costs of shallow zone source control are reduced by increased local participation already taking place. The San Gabriel Valley Water Quality Authority, along with local water producers, are working with local partnerships to develop local cleanup projects.*

3. *These complicated negotiations hinge on the adoption of shallow zone source control in the Record of Decision for South El Monte. By not including shallow zone source control, the USEPA is not taking into consideration local participation and funds.*

**EPA's Response.** Although EPA concurs that there are long-term benefits to any shallow zone source control actions in the South El Monte OU, EPA firmly believes that the additional benefits of Alternative No. 4 as they relate to long-term groundwater containment (which is the goal of this remedy) are not large enough to justify the significant additional costs. However, EPA will continue to work with the Regional Water Quality Control Board to implement source removal and source control actions at specific facilities or groups of facilities in the South El Monte OU. Further, as we have in the past, EPA will continue to support the development of local partnerships to fund and implement source control actions such as the shallow zone extraction barrier pilot project (SEPP) currently operating in the South El Monte OU.

Based on comments received from the San Gabriel Basin Water Quality Authority (see Section 1.5 above), we do not believe that agreements for continued operation of local cleanup projects, such as the SEPP, hinge on this ROD incorporating shallow zone source control into the South El Monte OU interim remedy.

## 1.7 Responses to Comments from the Southeast Water Coalition (SEWC)

**SEWC Comment No. 1.** *In the Proposed Plan for the South El Monte Operable Unit, the USEPA has identified Alternative 3 as the Preferred Alternative. The USEPA has stated that the additional \$4 million in cost to implement shallow zone control in Alternative 4 compared to Alternative 3 is not justified. In the Proposed Plan, the USEPA further states, "Alternative 4 would provide much greater reduction in toxicity, mobility, and volume of contaminants through treatment than Alternative 3, although this increased contaminant removal increases costs substantially."*

*The USEPA has stated that since the Whittier Narrows OU remediation project will be able to collect and treat any contamination that migrates from South El Monte, it is not necessary to implement shallow zone source control in South El Monte. This means that the USEPA will allow shallow contamination, which is easier and less costly to remove, to spread and migrate deeper into the intermediate zones, where it becomes more difficult and costly to contain and remove. SEWC feels that the \$4 million savings in elimination of shallow zone control could be much less than the added cost to deal with the contamination further downstream in the Whittier Narrows.*

*SEWC reiterates the importance of the Montebello Forebay to the Central Basin. As a point of concurrence, Section 5.2 of the Whittier Narrows Operable Unit Feasibility Study Addendum correctly states that migration of San Gabriel contamination into the Montebello Forebay area could impact the water supply for millions of Central Basin water users. Total reliance on the Whittier Narrows remediation solution to catch all of the contamination migrating from South El Monte seems very risky. Every effort to minimize the amount of contamination that will migrate from South El Monte to the Whittier Narrows should be taken. To that end, SEWC strongly supports Alternative 4 of the Proposed Plan for the South El Monte Operable Unit.*

**EPA's Response.** EPA appreciates the need to protect the Central Basin from the impacts of San Gabriel Basin contamination and will continue to work towards accelerated implementation of the Whittier Narrows OU remedy. The Whittier Narrows remedy will be designed to contain contamination migrating through Whittier Narrows and into the Central Basin. EPA does not concur that it is "risky" to rely solely on the Whittier Narrows remedy to contain contamination migrating south from the South El Monte OU.

EPA does not expect that the shallow zone source control component of Alternative No. 4 would significantly affect the lateral or vertical extent of contamination exceeding MCLs in Whittier Narrows (and therefore requiring containment) for many years. Therefore, Alternative No. 4 would not result in significant cost savings for O&M of the Whittier Narrows remedy because the same amount of water would need to be pumped and treated. Although Alternative No. 4 would likely reduce influent concentrations to the Whittier Narrows remedy treatment plant over the long-term, these savings would not be large enough to justify the cost of the alternative. Thus, EPA has concluded that Alternative No. 4 is not the most cost effective containment strategy. However, EPA is still very interested in shallow zone source removal and control as part of the overall remedial efforts in the South El Monte OU. EPA will continue to work closely with the Regional Water Quality Control Board and other local stakeholders to ensure that source-area cleanup activities continue at individual facilities or groups of facilities in the South El Monte OU.

**SEWC Comment No. 2.** *Additionally, SEWC will not accept any remedial activities that are designed to allow any additional contamination exceeding the maximum contaminant levels to enter the Central Basin from the San Gabriel Valley. Also, as SEWC stated in commentary to the Whittier Narrows Operable Unit Feasibility Study Addendum, EPA needs to provide a contingency action plan that will treat wells in the Central Basin that may become affected by San Gabriel Valley contamination in the future.*

*The SEWC strongly urges the USEPA to continue to work with the Whittier Narrows Local Agency Workgroup through the finalization of the Proposed Plan for the South El Monte Operable Unit. The comments provided in this letter are of a general nature and detailed comments will be provided to the USEPA through continued correspondence on a technical level with staff from the SEWC Technical Advisory Committee and the Water Replenishment District.*

**EPA's Response.** As described in the Whittier Narrows OU ROD Amendment, EPA's objective for the Whittier Narrows OU remedy is to contain and extract groundwater contaminated with chemicals in excess of drinking water standards in Whittier Narrows. The intent of this containment is to limit migration of all groundwater exceeding MCLs into the Central Basin.

As is described further in the Responsiveness Summary portion of the Whittier Narrows OU ROD Amendment, EPA did not include a wellhead treatment contingency in the ROD Amendment. EPA intends to continue to apply Agency resources towards the task of protecting the quality of the groundwater aquifer by containing contaminant source areas and capturing contamination in the aquifer.

Once the Whittier Narrows remedy is implemented, EPA considers it unlikely that any additional Central Basin production wells will require wellhead treatment. The remedy should stop migration of contamination through the Narrows, thereby reducing the threat of significant contamination reaching the Central Basin.

However, EPA does expect that some of the contamination currently in the Narrows will continue to move into the Central Basin aquifer before the proposed remedy can take effect. EPA will continue to monitor the wells along the Whittier Narrows Dam. Should contaminant levels increase such that groundwater contamination poses a significant threat to Central Basin production wells, EPA may implement a focused, fast-track temporary extraction system to protect Central Basin wells.

## 1.8 Responses to Comments from the Water Replenishment District of Southern California (WRD)

**WRD Comment No. 1.** *In the Proposed Plan for the South El Monte Operable Unit, the USEPA has identified Alternative 3 as the Preferred Alternative. The USEPA has stated that the additional \$4 million in cost to implement shallow zone control in Alternative 4 compared to Alternative 3 is not justified. In the Proposed Plan, the USEPA further states, "Alternative 4 would provide much greater reduction in toxicity, mobility, and volume of contaminants through treatment than Alternative 3, although this increased contaminant removal increases costs substantially."*

*The USEPA has stated that since the Whittier Narrows OU remediation project will be able to collect and treat any contamination that migrates from South El Monte, it is not necessary to implement shallow zone source control in South El Monte. This means that the USEPA will allow shallow contamination, which is easier and less costly to remove, to spread and migrate deeper into the intermediate zones, where it becomes more difficult and costly to contain and remove. WRD feels that the \$4 million savings in elimination of shallow zone control could be much less than the added cost to deal with the contamination further downstream in the Whittier Narrows.*

**EPA's Response.** EPA does not expect that the shallow zone source control component of Alternative No. 4 would significantly affect the lateral or vertical extent of contamination exceeding MCLs in Whittier Narrows (and therefore requiring containment) for many years. Therefore, Alternative No. 4 would not result in significant cost savings for O&M of the Whittier Narrows remedy because the same amount of water would need to be pumped and treated. Although Alternative No. 4 would likely reduce influent concentrations to the Whittier Narrows remedy treatment plant over the long-term, these savings would not be large enough to justify the cost of the alternative. Thus, EPA has concluded that Alternative No. 4 is not the most cost effective containment strategy. However, EPA is still very interested in shallow zone source removal and control as part of the overall remedial efforts in the South El Monte OU. EPA will continue to work closely with the Regional Water Quality Control Board and other local stakeholders to ensure that source-area cleanup activities continue at individual facilities or groups of facilities in the South El Monte OU.

**WRD Comment No. 2.** *WRD believes that both shallow and intermediate zone control in the South El Monte Operable Unit, in conjunction with the proposed shallow and intermediate zone remediation in the Whittier Narrows Operable Unit (WNOU), are vital to the protection of the Central Basin from San Gabriel Valley contamination. Due to the complexities associated with implementation of the WNOU remediation project, WRD has and will continue to support actions that can be quickly implemented to remove sources of contamination in both the SEMOU and the WNOU as well as containing significant threats to the Central Groundwater Basin. These goals prompted the implementation of the early action extraction barriers in SEMOU and WNOU. The SEMOU early action extraction barrier is currently in operation while the WNOU early action extraction barrier is scheduled to be operational in December 1999. The USEPA needs to assure that these projects will be included in the comprehensive remedy proposed by the USEPA to minimize the contamination threat to the Central Basin. The USEPA has recently stated interest in implementing an early removal project in the intermediate zone of the WNOU. WRD supports that interest and encourages prompt execution of this project, while the USEPA continues to implement the regional remediation project in the WNOU.*

**EPA's Response.** Although there are definite benefits associated with shallow zone control in the South El Monte OU, EPA does not concur that South El Monte OU shallow zone control is "vital" to the protection of the Central Basin from San Gabriel contamination.

EPA will continue to move forward on accelerated implementation of the full containment remedy in the Whittier Narrows OU. EPA also supports local stakeholder cooperation that facilitates early implementation of components of the ultimate remedy in either the Whittier Narrows or South El Monte OUs.

**WRD Comment No. 3.** *WRD reiterates the importance of the Montebello Forebay to the Central Basin. As a point of concurrence, Section 5.2 of the Whittier Narrows Operable Unit Feasibility Study Addendum correctly states that migration of San Gabriel contamination into the Montebello Forebay area could impact the water supply for millions of Central Basin water users. Total reliance on the Whittier Narrows remediation solution to catch all of the contamination migrating from South El Monte would be very risky. Every effort to minimize the amount of contamination that will migrate from South El Monte to the Whittier Narrows should be taken. To that end, WRD strongly supports Alternative 4 of the Proposed Plan for the South El Monte Operable Unit.*

**EPA's Response.** EPA appreciates the need to protect the Central Basin from the impacts of San Gabriel Basin contamination and will continue to work towards accelerated implementation of the Whittier Narrows OU remedy. The Whittier Narrows remedy will be designed to contain contamination migrating through Whittier Narrows and into the Central Basin. EPA does not concur that it is "risky" to rely solely on the Whittier Narrows remedy to contain contamination migrating south from the South El Monte OU. As described above in the response to WRD Comment No. 1, EPA has concluded that Alternative No. 4 is not the most cost effective containment strategy. EPA will continue to support source removal and source control through other avenues, as described above.

**WRD Comment No. 4.** *Additionally, WRD will not accept any remedial activities that are designed to allow any additional contamination exceeding the maximum contaminant levels to enter the Central Basin from the San Gabriel Valley. Also, as WRD stated in commentary to the Whittier Narrows Operable Unit Feasibility Study Addendum, EPA needs to provide a contingency action plan that will treat wells in the Central Basin that may become affected by San Gabriel Valley contamination in the future.*

*WRD strongly urges the USEPA to continue to work with the Whittier Narrows Local Agency Workgroup through the finalization of the Proposed Plan for the South El Monte Operable Unit. The comments provided in this letter are of a general nature and detailed comments will be provided to the USEPA through continued correspondence on a technical level with staff from the Water Replenishment District and the SEWC Technical Advisory Committee.*

**EPA's Response.** See response to SEWC Comment No. 2 above in Section 1.7.

## **1.9 Responses to Comments from the San Gabriel Valley Water Company**

**San Gabriel Valley Water Company (SGVWC) Comment No. 1.** *San Gabriel Valley Water Company ("San Gabriel") is a public utility providing water service to all or portions of 18 cities in Los Angeles County, including nearly all of the area within the South El Monte Operable Unit ("OU"). San Gabriel fully supports EPA's Preferred Alternative: Alternative 3 - Intermediate Zone Control in Western South El Monte OU.*

*The discussion of Alternative 3 states that "the preferred alternative provides the option of using San Gabriel Valley Water Company well field extraction systems." This refers to San Gabriel's Plant No. 8 which is a key water production facility located near the intersection of Rosemead Boulevard and Garvey Avenue in South El Monte in the northeast portion of the OU. VOC contamination has been*

*detected in four of the five wells at Plant No. 8 with three of these wells currently exceeding the MCL for PCE. In response, San Gabriel is planning to install a wellhead treatment facility in the year 2000.*

*As stated in Michael L. Whitehead's March 24, 1999 letter to Gavin McCabe (copy enclosed), "if agreement can be reached with EPA and the South El Monte Operable Unit participants, San Gabriel is willing and able to operate its facilities and commit to meeting [the] operational requirements [of EPA] for the duration of the EPA required cleanup" at our Plant No. 8.*

*San Gabriel endorses the use of existing wells to resolve both groundwater cleanup and drinking water supply issues, and we are pleased that EPA has chosen such a plan as the Preferred alternative in South El Monte.*

**EPA's Response.** EPA appreciates SGVWC's interest in participating in the South El Monte OU remedy. In addition to the water supply benefits gained by providing the treated water to water purveyors, EPA believes that the use of existing water supply wells and facilities will likely be the most cost-effective way to implement the South El Monte OU remedy. EPA will continue to work towards accelerated implementation of the selected remedy in the South El Monte OU and we are optimistic that the necessary agreements can be reached to allow the use of existing facilities to the maximum extent possible to meet the objectives of the selected remedy described in this ROD. EPA will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including SGVWC, to reach these agreements in a timely manner.

**San Gabriel Valley Water Company (SGVWC) Comment No. 2.** *These comments are offered to assist the EPA in its evaluation of the South El Monte Operable Unit ("SEMOU") Draft Feasibility Study ("Draft FS"). In particular we urge the EPA to endorse the use of existing wells and planned wellhead treatment facilities of San Gabriel Valley Water Company ("San Gabriel") as an important element of the groundwater remediation plan in the SEMOU.*

*San Gabriel is a public utility water company which is subject to the regulatory jurisdiction of the California Public Utilities Commission (the "CPUC"). San Gabriel has operated since 1937 and provides public utility water service to a population of over 160,000 in 15 cities including all of South El Monte, and in unincorporated county areas in the San Gabriel Valley. San Gabriel produces nearly 40,000 acre feet of water per year from 31 wells in Los Angeles County, including 27 wells in the Main San Gabriel Basin. San Gabriel's Plant No. 8 is a key water facility with 5 wells and is within the SEMOU.*

*Rising VOC levels necessitated the drilling of a new well at Plant No. 8 in 1998 and a treatment plant is planned for later this year. The need to provide reliable water supply that meets all federal and state safe drinking water standards dictates that we design and construct this facility now, regardless of the cleanup plan required by EPA in the SEMOU. But the cost of building and operating these facilities will be borne, at least initially, by San Gabriel and its customers. Clearly, in the interest of sound public policy, EPA should encourage and allow the SEMOU PRPs to help pay for and incorporate the Plant No. 8 facilities into their cleanup plan, thereby minimizing their own costs while lifting the cost burden from San Gabriel and its customers.*

*Plant No. 8's location at the western edge of the SEMOU VOC plume makes it a logical location for containment and treatment of the westward migration of VOCs and it has been identified as such in the Draft FS. The operational requirements of Plant No. 8 for containment of VOCs in the western SEMOU as outlined in the Draft FS are achievable with existing facilities and at historic pumping rates. If agreement can be reached with EPA and the SEMOU participants, San Gabriel is able to operate its facilities and commit to meeting those operational requirements for the duration of the EPA required cleanup and San Gabriel is prepared to meet and confer with EPA and the SEMOU participants to discuss the terms and conditions of such an agreement.*

*In that regard, San Gabriel's longstanding management, technical expertise, and financial resources should provide EPA ample assurance of San Gabriel's ability to carry out such a cleanup plan. As previously stated, San Gabriel has provided reliable public utility water service in the San Gabriel Valley since 1937. San Gabriel's entire water system, including Plant No. 8, is dedicated to public use and is necessary and useful to San Gabriel in the performance of its obligations as a public utility as provided in the Public Utilities Code and pursuant to CPUC regulations. As such, none of the facilities in that water system can be freely transferred, sold or even encumbered as long as they remain necessary and useful to San Gabriel in the performance of those obligations.*

*San Gabriel strongly urges EPA to endorse the use of Plant No. 8 as proposed in the Draft FS. Doing so will advance the legitimate and appropriate public policy objective of assuring that already contaminated sources of public water supply are directly remedied in a way that will benefit and bring much needed relief to San Gabriel and its customers who rely so heavily on groundwater produced within the SEMOU area. We would be happy to meet with you to discuss this possibility at the earliest possible date.*

**EPA's Response.** As stated in the response to SGVWC's Comment No. 1, EPA appreciates SGVWC's willingness to participate in the South El Monte OU remedy. EPA also understands the significant financial and operational impacts of South El Monte OU contamination on SGVWC's water supply wells. EPA will continue to work towards accelerated implementation of the selected remedy in the South El Monte OU and supports the use of existing water supply wells and facilities to the maximum extent possible to help meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including SGVWC, to reach these agreements in a timely fashion. EPA does not expect that any operational agreements would need to include provisions that SGVWC give up control of any portion of their system. However, SGVWC would need to commit to operating their facilities in a manner that would ensure that the performance standards described in this ROD are met.

## **1.10 Responses to Comments from the Southern California Water Company (SCWC)**

**SCWC Comment No. 1.** *By way of background, SCWC provides retail water service to approximately 4,600 customers within the cities of Rosemead and South San Gabriel, and portions of the unincorporated county of Los Angeles. SCWC has relied on groundwater pumped from within the OU to meet the majority of its customers' needs for many years.*

*In particular, SCWC operates two groundwater wells within the OU: San Gabriel Wells 1 and 2. Both wells have been impacted by PCE and TCE contamination. One well was shut down in April 1999 because the maximum contaminate level for PCE was exceeded. Low levels of PCE and TCE have been detected in the other well, and it is currently in a six-month monitoring period under Department of Health scrutiny.*

*SCWC's customers face a substantial cost increase in responding to the shutdown of the Company's wells. Either SCWC will be forced to install expensive well head treatment, or rely entirely on more expensive imported water purchased from the Upper San Gabriel Valley Municipal Water District.*

*SCWC encourages the EPA to continue its aggressive effort to remediate as quickly and efficiently as possible the contamination in the OU and the San Gabriel Valley Groundwater Basin generally. To that end, SCWC has several comments on the Proposed Plan which it hopes will be incorporated in the Record of Decision (ROD).*

- **The Plume Boundary Should be Expanded to the West.** *The western boundary of the OU plume is generally limited by Walnut Grove Boulevard. However, several production wells to the west of this boundary, including SCWC's, have detected substantial levels of PCE and TCE. As mentioned above, one of SCWC's wells is shut down because it has PCE levels above the MCL. The plume has clearly migrated to the west and north. Based on the current contaminant levels, a more accurate representation of the western plume boundary would be San Gabriel Boulevard. As discussed below, effective plume management depends on proper placement of extraction facilities, which in turn is dependent on proper delineation of the plume boundaries.*

*Modification of the plume boundary in this manner is consistent with actions taken by the EPA in the Baldwin Park OU. Indeed, the plume boundary in that OU has been shifted south and west several times to account for the plume migration.*

**EPA's Response.** At the time the Proposed Plan was prepared, EPA was not aware that MCL exceedances had been detected further west than Walnut Grove Boulevard. As shown in Figures 3 and 5 in this ROD, the interpreted extent of contamination has been revised to incorporate more recent data, including new monitoring wells EPA installed in this area since the Proposed Plan was issued. The updated figure shows the intermediate zone contamination extending further west to encompass the SCWC and Monterey Park wells that exceed MCLs in this area.

**SCWC Comment No. 2. Pump and Treat Facilities Should be Located on the Leading Edge of the Plume.** *Normally, optimal plume management through the EPA Alternative 3 methodology (pump and treat) would involve locating the extraction facilities at the leading edge of the plume. Any other location may result in creation of multiple plumes or incomplete remediation. Given the migration westward, location of the pump and treat facilities on the westernmost boundary of the plume would be optimal. We request that the EPA consider this criteria carefully, particularly in light of the westerly plume migration, before selecting the site or sites for the pump and treat facilities. Instead of identifying the exact location of the proposed pump and treat facilities, the EPA ROD should simply require as one criterion the location of the wells on the leading edge of the plume.*

**EPA's Response.** EPA's performance standards for this remedy (described in Section 11 of this ROD) do address the entire extent of the intermediate zone contamination in the western portion of the South El Monte OU, including the leading edge of contamination. EPA has not indicated the specific locations of extraction wells in this ROD (see Section 11). This will allow the parties responsible for implementing the remedy flexibility in determining where extraction wells should be located and to work out agreements with water purveyors and local stakeholders to use existing infrastructure as much as possible to help meet the performance standards for the South El Monte OU remedy.

**SCWC Comment No. 3. Pump and Treat Facilities Should be Located to Take Advantage of Localized Groundwater Gradients and Pumping Holes.** *According to the Main San Gabriel Basin Watermaster hydrologic model of the OU, there is a pumping hole in the immediate area around SCWC's San Gabriel well facilities. Pumping holes such as this tend to maximize the groundwater inflow gradient to the pumping depression. This characteristic might be used to further optimize the placement of pump and treat facilities. Indeed, SCWC's San Gabriel wells may be an optimal location because they are both at the leading edge of the plume and within this pumping depression. However, neither SCWC's wells nor this general region are listed within the Proposed Plan as possible locations for the pump and treat facilities. Again, rather than simply identifying the exact location of the proposed pump and treat facilities, the EPA should include reference to the existence of a localized pumping hole in the western area of the OU unit and list as a criterion that the pump and treat facilities be located to take advantage of this characteristic.*

**EPA's Response.** As noted above, at the time the Proposed Plan was prepared EPA was not aware that contamination in excess of MCLs had migrated so far west, so the City of Monterey Park and SCWC

wells located west of Walnut Grove Boulevard were not evaluated as potential locations for containment of the intermediate zone contamination. This ROD does not specify the precise locations of extraction wells to be used to provide the containment necessary to meet the performance standards described in Section 11. A more detailed evaluation of groundwater flow directions in this area, including the influence of the "pumping hole" and the individual production wells in this area (including SCWC's wells) will be needed during the remedial design phase to select the final extraction locations for the South El Monte remedy.

**SCWC Comment No. 4. Use of Existing Facilities Should be Maximized.** *SCWC encourages the EPA to pursue its approach of maximizing the incorporation and use of existing facilities within the final remedial action. Where practical, existing treatment facilities should be incorporated into the EPA's imposed remediation effort so that water suppliers can recover some of the added costs forced on them by contamination. To the extent feasible, the responsible parties should be required to treat the contaminated groundwater resources so that the treated water is safe for human consumption. The water consumers in the OU have been forced to pay substantially higher water costs because of the contamination. This expense should be placed on the entities responsible for the contamination to the full extent possible. This priority criterion is implied in the EPA preferred alternative, but it should be listed more definitively in the ROD.*

**EPA's Response.** Although this ROD does not require the use of existing water purveyor facilities to implement the remedy in the South El Monte OU, EPA believes that maximizing the use of existing facilities will likely be the most cost effective way to implement the remedy. EPA is optimistic that the necessary agreements can be reached to allow the use of existing facilities to help meet the objectives of the selected remedy described in this ROD and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders and water purveyors to reach these agreements in a timely manner.

## 1.11 Responses to Comments from South El Monte Businesses (Group A)

The following eight South El Monte OU businesses and/or property owners all submitted the same set of comments: CraneVeyor Corporation; Jebbia Trust; Seachrome Corporation; Earl Butler & Associates, Inc.; Smittybilt Corporation; Roc-Aire Corporation; Bassett & Obbink; and Ray Finkle. EPA's responses below cover the comments submitted by each of the companies included in this group, termed Group A for presentation purposes.

**Group A General Comment No. 1.** *Of the four remedial alternatives considered by EPA, Alternative 3, EPA's preferred remedy: (1) adequately protects human health and the environment; (2) attains applicable or relevant and appropriate requirements ("ARARS") under federal and state environmental laws; and (3) most optimally balances all of the "primary balancing criteria" required to be considered under Section 300.430 of the National Oil and Hazardous Substances Pollution Contingency Plan, Title-40, Code of Federal Regulations Part 300 (the "NCP").*

**EPA's Response.** EPA concurs with this conclusion and has selected Alternative No. 3 in this ROD as the interim remedy for the South El Monte OU.

**Group A General Comment No. 2.** *Conversely, the alleged marginal increased environmental benefits associated with Alternative 4 are far outweighed by the known marginal increased costs of implementing this alternative. Alternative 4 costs over 47 percent more than Alternative 3 but does not generate commensurate health and safety benefits for the added dollars.*

**EPA's Response.** EPA has also concluded that the additional benefits gained from Alternative No. 4 are not significant enough to justify the considerable additional costs. EPA has selected Alternative No. 3 in this ROD as the interim remedy for the South El Monte OU.

**Group A General Comment No. 3.** *EPA should continue to encourage stakeholders to implement supplemental voluntary remediation programs, (including but not limited to the Shallow Zone Extraction Pilot Project ("SEPP")). However, EPA should not include the SEPP in the SEMOU Record of Decision ("ROD") as it is not necessary to comply with the NCP.*

**EPA's Response.** EPA has not included the Shallow Zone Extraction Pilot Project (SEPP) in this ROD. However, EPA remains very interested in continued implementation of source control and source removal actions, such as the SEPP, in the South El Monte OU. EPA will continue to work with the RWQCB and SEMOU PRPs to ensure that appropriate site-specific cleanup is occurring at individual facilities or groups of facilities.

**Group A General Comment No. 4.** *Additional source identification is warranted. Presently unidentified or uninvestigated sources within the SEMOU could significantly impact the details and costs of a final remedy. Moreover, it is extremely inequitable and against public policy for the presently identified potentially responsible parties ("PRPs") to pay for past or possibly ongoing releases of contaminants from neighboring properties. Failure of the Agency to identify a wider group of responsible parties increases the risk that future response actions would be funded with Superfund money or after incurring unnecessary litigation costs better used for remediation.*

**EPA's Response.** Extensive source identification activities have already occurred throughout the South El Monte OU. EPA is continuing to gather data and evaluate individual facilities in the South El Monte OU and it is likely that EPA will identify some additional PRPs.

**Group A General Comment No. 5.** *EPA should rapidly complete its assessment of candidates for early cashout settlements based on financial and technical criteria. Proceeds raised from such settlements should be earmarked for future response actions listed in the ROD and not used merely to offset past EPA oversight costs. Past oversight costs should be collected from recalcitrant parties.*

**EPA's Response.** EPA is evaluating "ability to pay" information for interested South El Monte PRPs and considering candidates for early settlements and expects to offer settlements to qualifying parties. EPA expects to issue Special Notice Letters to South El Monte OU PRPs following release of this ROD and at this time cannot respond to comments on allocation of settlement proceeds. Further, EPA will not know if there are any "recalcitrant" parties until after Special Notice Letters have been issued and consent decree negotiations initiated.

**Group A Specific Comment No. 1.** *Alternative 3 versus Alternative 4. The primary difference between Alternative 3 and 4 is that the latter includes a "Shallow Zone Extraction" component in addition to the "Localized Intermediate Zone Extraction" common to both alternatives. As discussed below in Specific Comment 2, an ongoing Shallow Zone Extraction Pilot Project (which would arguably satisfy the supplemental requirements of Alternative 4) already is being conducted on a voluntary basis.*

*The comparative water quality benefits of Alternatives 3 and 4 can be seen by looking at the projected concentrations of key contaminants at downgradient monitoring points. The two most important downgradient monitoring points in this case are: a) the Whittier Narrows Dam, where the cost of the Whittier Narrows Operable Unit remedy could be impacted; and b) the Montebello Forebay, a source of drinking water for the Los Angeles Central Basin.*

Attached to this letter is a copy of Figures 45 and 46 from the SEMOU Feasibility Study ("FS") that was reviewed and approved by EPA. Figure 45 is a "Comparison of Projected PCE<sup>1</sup> concentrations at [the] Whittier Narrows Dam." The left side of Figure 45 compares PCE concentrations in the shallow zone, while the right side makes the same comparison for the intermediate zone. Figure 46 makes similar comparisons at the Montebello Forebay.<sup>2</sup>

In both figures, there is extremely little difference between the PCE concentrations in these locations, regardless of whether Alternative 3 or 4 are used. As EPA plans to conduct a significant<sup>3</sup> groundwater pump and treat remedy at the Whittier Narrows dam regardless of whether shallow zone extraction is conducted in the SEMOU, there is little reason to absolutely require that shallow zone extraction in the SEMOU be made part of the Record of Decision.

EPA estimates the net present value ("NPV") of Alternative 3 is approximately \$8,334,400. The estimated NPV of Alternative 4 is \$12,285,000, representing a 47.4 percent cost increase over Alternative 3. When viewing the projected PCE concentrations at the Dam and the Forebay under both alternatives, there is insufficient marginal increased protection of human health and the environment to warrant the mandatory inclusion of shallow extraction in the ROD. In gross overview, implementation of Alternative 3 (and of a reasonable remedy which will occur in the WNOU) adequately protects human health and the environment while complying with all ARARS. Alternative 3 satisfies the threshold criteria in 40 C.F.R. Section 300.430(f)(1)(i)(A).

Furthermore, analysis of the NCP's five "primary balancing criteria" in 40 C.F.R. Section 300.430(f)(1)(i)(B) does not support a 47.4 percent increase in the cost of the remedy either.

- First, there is no evidence in the FS to support a claim that Alternative 3 (and some reasonable response action in the WNOU) will not achieve "long-term effectiveness and permanence" in both the SEMOU and the WNOU.
- Second, "reduction of toxicity, mobility, or volume through treatment" should be considered. Admittedly, any additional groundwater extraction well strategically placed in the SEMOU will likely remove some COCs from the groundwater. However, when balanced with the 47.4 percent increase in costs, it is unlikely that the SEPP will reduce toxicity, mobility or volume at drinking water wellheads by 47.4 percent, the point most critical to human exposure to contaminated groundwater. Again, the SEPP is helpful but should not be required in the ROD.
- Third, EPA should consider "short-term effectiveness" of the SEPP when looking at the overall SEMOU remedy. While the SEPP is already showing early positive results in remediating shallow zone contaminants, it does not have any short term impact on contaminants in the intermediate zone, which is more likely a source of drinking water. Implementation of the SEPP will not shorten the overall SEMOU remedy by 47.4 percent.

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<sup>1</sup> Although PCE is not the only constituent of concern in the SEMOU, it was viewed as one of the most significant contaminants of concern ("COCs") and a representative of how other COCs will migrate under various remedial alternatives.

<sup>2</sup> The FS also compared PCE concentrations at a point under Highway 60. However, this was an arbitrarily chosen point based only on a major surface landmark and is not relevant to the location of a remedial action point (the dam) or a major source of drinking water (the Forebay).

<sup>3</sup> At present, we understand that EPA plans to pump and treat approximately 9,000 gallons per minute of groundwater at the Whittier Narrows Dam. To our knowledge, EPA has not made any commitments about reducing the scope of its WNOU remedy, even if the SEPP were made part of the SEMOU ROD.

- *Fourth, EPA should consider "implementability" of the SEPP. The SEPP is being implemented and is likely to continue being implemented on a voluntary basis by private parties. This is not a significant factor in the analysis.*
- *Fifth, the agency must consider the "cost" of the final remedy. This has been discussed above as a function of the other balancing criteria. We concur with EPA's initial position that, while shallow zone extraction is beneficial to the overall remedy, the cost of requiring additional shallow zone extraction in the ROD outweighs the associated benefits.*

**EPA's Response.** EPA believes that the figures included in the South El Monte OU FS Report (Geosystems, 1999) showing projected simulated future PCE concentrations at various locations in the aquifer should only be used for very general comparisons of the remedial alternatives. However, EPA has reached the same conclusion as the commentor regarding the increased cost of Alternative No. 4 compared to its additional benefits. This ROD selects Alternative No. 3 for the interim remedy in the South El Monte OU.

**Group A Specific Comment No. 2.** *Shallow Zone Extraction Pilot Project. Although it should not be included as a component of the SEMOU ROD, EPA should encourage stakeholders to pursue additional response actions including but not limited to the Shallow Zone Extraction Pilot Project ("SEPP"). The SEPP is a voluntary project undertaken in part by some private parties and the San Gabriel Valley Water Quality Authority to remove COCs in shallow groundwater. EPA has also provided valuable assistance in the SEPP.*

*The SEPP is currently funded for at least one more year. Now that initial remediation statistics are being generated, additional private parties are showing an interest in raising additional funds to continue operating the SEPP voluntarily. These actions are laudable and should be recognized in the equitable apportionment of response costs. However, these efforts go above and beyond what is required under the NCP and should not be required in the ROD.*

**EPA's Response.** EPA appreciates the efforts of the various entities, including selected South El Monte OU PRPs and the WQA, that have stepped forward to fund installation and operation of the SEPP. EPA believes that additional source control and source removal activities, such as the SEPP, at individual facilities or groups of facilities in the South El Monte OU aid cleanup efforts by removing significant concentration of contaminant mass. EPA will continue to work with the RWQCB and other local stakeholders, such as the WQA, to ensure that appropriate source control actions are implemented in the South El Monte OU.

**Group A Specific Comment No. 3.** *Additional Source Identification. Regardless of what Alternative is chosen by EPA, additional source identification is necessary if a SEMOU remedy is to be funded by private parties. To date, EPA and the California Regional Water Quality Control Board identified a limited number of PRPs who happened to be in business at the time a PRPs search was conducted. More effort is needed to identify facilities that engaged in operations similar to those conducted by listed PRPs. Because other parties were not actively engaged in targeted industrial operations when the initial screening exercise was conducted, the properties were not required to conduct subsurface investigations or remediation, even though many other facilities used the same COCs and manufacturing procedures as the listed PRPs. Sites with similar histories of operations and chemical usage should be held to the same standards of subsurface investigation, remediation and liability.*

*Based on personal knowledge of the South El Monte area built up over a number of years, I believe that enough financially viable parties could be traced to additional sites to warrant additional PRPs search activities. Based upon its preliminary screening work to date, EPA is in the most economically efficient position to complete its source identification program. The resulting groundwater remediation funds likely to be generated by newly added PRPs would more than offset this initial investment. These*

*additional costs are easier for EPA to recover than a private party who has a different burden of proving compliance with the NCP in a cost recovery action, let alone economic hurdles for funding such work.*

*Source identification should also take place for sources outside of the SEMOU. For example, attached Figure 13 from the FS shows a "straight line cut-off" of the PCE and PCE plume in the northeast corner of the SEMOU. This straight line represents a data gap that can be re-drawn using existing data from hydrologically upgradient sources to determine the impact on the SEMOU from the Baldwin Park Operable Unit ("BPOU").*

*In addition to source identification, this combined information would be helpful in projecting long term remediation strategies. For example, recent sampling of SEMOU monitoring wells shows evidence of perchlorate contamination. Perchlorates are most likely traceable to sources in the BPOU and not to the SEMOU. Using perchlorates as a tracer element, it would not be unreasonable to assume that other COCs released in the BPOU are also migrating into the SEMOU.*

*In closing, the failure to identify more responsible parties' could well result in insufficient funds being raised by existing PRPs to support EPA's proposed remedy for the SEMOU. Additional funding would have to come from either the Superfund or through inefficient cost recovery litigation.*

**EPA's Response.** As noted in the response to General Comment No. 4 above, extensive source identification activities have already occurred throughout the South El Monte OU. EPA is continuing to gather data and evaluate individual facilities in the South El Monte OU and it is likely that EPA will identify some additional PRPs. The commentor references personal knowledge of the South El Monte area that may help identify additional PRPs. EPA and the RWQCB are interested in additional information that could help in identifying potential source areas and would gladly evaluate any new information provided.

Regarding source areas outside of the South El Monte OU, EPA acknowledges that some low-level contamination is migrating into the South El Monte OU. However, based on the available water quality and water level data from a number of monitoring wells installed upgradient of South El Monte OU source areas, EPA does not believe that any other OU (including the Baldwin Park OU) is contributing a meaningful portion of the contamination that is to be addressed by this interim remedy or the interim remedy in the Whittier Narrows OU. If not for contaminant releases from South El Monte OU facilities, there would be no need for the interim remedies selected in the South El Monte and Whittier Narrows OUs. Figures 2 and 3 in the proposed plan (and in this ROD) show the interpreted extent of VOC contamination in the South El Monte OU and nearby portions of surrounding OUs.

**Group A Specific Comment No. 4. Early Cashout Settlements.** *EPA is aware of the fact that, unlike certain other operable units in the Site, the SEMOU primarily consists of relatively small businesses and individuals who are particularly impacted by the transaction costs associated with participation in the CERCLA process. It would be most economically efficient to reach an early, equitable cashout with financially limited parties as well as parties with demonstrated low impacts to the groundwater.*

*As the PRP identification process has failed to identify many facilities and PRPs within the SEMOU, the proceeds from the early cashout settlements must be used for the highest priority: implementation of the ROD. EPA's past response costs should be collected from recalcitrant PRPs who have not participated in past response actions and who do not plan to contribute to future response actions.*

**EPA's Response.** See the response above to General Comment No. 5.

## 1.12 Responses to Comments from South El Monte Businesses (Group B)

The following three South El Monte OU businesses all submitted the same set of comments: Clamp Manufacturing Company, Inc.; Eagle Metal Finishing Co. Inc.; and Tri-Fitting Manufacturing Company. EPA's responses below cover the comments submitted by each of the companies included in this group, termed Group B for presentation purposes.

**Group B Comment No. 1.** *I would like to offer the following comments on the Proposed Plan for the South El Monte Operable Unit (SEMOU). The selection of Alternative Three Intermediate Zone Control in Western South El Monte Operable Unit is the wisest choice for attaining EPA's goals as stated on page seven of the Proposed Plan. The extensive effort currently under way in the Whittier Narrows Operable Unit (WNOU) will, in fact, address the southern flow of contamination from SEMOU. This fact is clearly addressed in the Whittier Narrows Operable Unit Feasibility Study Addendum. "... selecting remedial actions employing treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of hazardous substances as a principal element of the action."*

**EPA's Response.** EPA concurs that implementation of Alternative No. 3, in conjunction with the Whittier Narrows OU interim remedy, best meets EPA's goals for the South El Monte OU interim remedy. Alternative No. 3 has been selected in this ROD.

**Group B Comment No. 2.** *Currently the Shallow Zone Extraction Pilot Program (SEPP) provides a degree of hydraulic containment and removes a significant mass of VOC from the shallow aquifer.*

*As a containment measure, the SEPP could be considered redundant once EPA's WNOU remedy becomes operational. As a VOC mass removal or source control measure, however, the SEPP's value will not be diminished by EPA's remedy. It can be argued, therefore, that in the long run, the SEPP's main role will be VOC mass removal. Because EPA remedies in the San Gabriel Basin are all oriented toward containment, the SEPP should not be included in the record of decision (ROD).*

**EPA's Response.** For clarification, although EPA's interim remedies selected to date in the San Gabriel Basin primarily focus on containment, mass removal and source control have also been considered as secondary objectives for some remedies. EPA concurs that the primary benefits from the SEPP are related to source control, rather than containment. Although EPA has not included the SEPP as a specific component of the interim remedy in this ROD, EPA believes that additional source control and source removal activities, such as the SEPP, at individual facilities or groups of facilities in the South El Monte OU are an important component of the overall remedial efforts in the OU.

**Group B Comment No. 3.** *If Shallow Zone containment is included in the ROD for SEMOU, it is highly likely that EPA will specify a performance requirement rather than specifying the scope of the remedy. In other words, the ROD is more likely to say something to the effect that measures shall be implemented to prevent contaminants at a certain concentration from migrating out of the SEMOU. As currently operating, the SEPP may not achieve EPA's performance standard. Failure to meet EPA's performance standard could result in additional extraction wells and/or higher extraction rates.*

*Operating the SEPP outside of the ROD affords a much greater degree of flexibility than if it is included in the ROD. This flexibility could be very important if groundwater quality changes occur in the future.*

*Lastly, the action orientation that birthed the SEPP needs flexibility that performance requirements would only hamper. The SEPP is the only mitigating action now in operation within the area. It's results could be very helpful to the long run containment efforts, for both the SEMOU and the WNOU.*

**EPA's Response.** EPA concluded that, for this interim remedy, the additional benefits gained from the shallow zone source control component of Alternative No. 4 were not substantial enough to justify its higher costs and has not included shallow zone source control in this ROD. However, as noted above in the responses to several comments, EPA believes that source control/source removal actions such as the SEPP are an important component of the overall cleanup activities in the South El Monte OU. EPA will continue to work with the RWQCB and SEMOU PRPs to ensure that source control activities occur in a flexible, cost-effective fashion at individual facilities or groups of facilities.

## 1.13 Responses to Comments from South El Monte Businesses (Group C)

The following two South El Monte OU businesses both submitted the same set of comments: Artistic Polishing and Plating, Inc. and APW-Electronic Solutions. EPA's responses below cover the comments submitted by each of the companies included in this group, termed Group C for presentation purposes. .

**Group C Comment No. 1.** *Artistic agrees with EPA's selection of "Alternative 3" as its preferred remedial plan. Artistic believes Alternative 3 achieves EPA's overall strategy in the San Gabriel Valley Ground Water Basin which is to control contaminant migration. Alternative 3, when viewed in light of the Whittier Narrows OU ("WNOU") remedy, is a cost effective interim remedial action that controls contaminant migration. Additionally, the WNOU remedy and Alternative 3 are complimentary of each other in that the WNOU remedy will control contaminant migration to the South of the SEMOU and Alternative 3 will control contaminant migration to the west of the SEMOU.*

*Alternative 4, on the other hand, should not be selected for the SEMOU because it will provide nothing more than a costly redundancy to the WNOU remedy. Alternative 4 would cause an extraction field and treatment system to be installed between the southern boundary of the SEMOU and the WNOU extraction wells. Such a costly remedy will not achieve any greater control over contaminant migration than that provided by the WNOU remedy. Thus, Alternative 4 can not be justified on a cost or technical basis.*

**EPA's Response.** For clarification, the shallow zone source control component of Alternative No. 4 would not have been installed "between the southern boundary of the SEMOU and the WNOU extraction wells." It would have been just downgradient of South El Monte OU source areas.

EPA concurs that implementation of Alternative No. 3, in conjunction with the Whittier Narrows OU remedy, best meets EPA's goals for the South El Monte OU interim remedy. Alternative No. 3 has been selected in this ROD. EPA concluded that, for this interim remedy, the additional benefits gained from the shallow zone source control component of Alternative No. 4 were not substantial enough to justify its higher costs.

**Group C Comment No. 2.** *Moreover, certain PRPs, which includes Artistic, and the WQA have already implemented a shallow zone extraction pilot program ("SZEPP") in the southern portion of the SEMOU. Artistic and certain other PRPs participated in funding the SZEPP with the expectation and understanding that the system would not be the subject of EPA control or oversight. Rather, Artistic believed that the SZEPP was implemented to start mass removal from the shallow zone. Artistic urges the EPA to view the SZEPP as being similar to the many site specific remedies that have been implemented in the SEMOU. The suggestion of adding the SZEPP into the EPA's proposed plan (Alternative 4) is as illogical as adding all of the SEMOU site specific remedies to its proposed plan. The SZEPP is a separate remedial measure and should remain as such.*

*Artistic supports EPA's selection of Alternative 3 as its proposed plan and urges EPA to reject Alternative 4.*

**EPA's Response.** EPA views the SEPP as a site-specific source control action for a group of facilities. And, although EPA has not included the SEPP in this ROD, EPA remains very supportive of the SEPP and will continue to work with the Regional Water Quality Control Board, local stakeholders and South El Monte OU PRPs to ensure that appropriate source control and source removal actions are implemented (or continued) at individual facilities or groups of facilities in the South El Monte OU.

## 1.14 Responses to Comments from Art Weiss Industrial Properties

**Art Weiss Industrial Properties Comment No. 1.** *I would like to offer the following comments on the Proposed Plan for the South El Monte Operable Unit (SEMOU). The selection of Alternative Three Intermediate Zone Control in Western South El Monte Operable Unit is the wisest choice for attaining EPA's goals as stated on page seven of the Proposed Plan. The extensive effort currently under way in the Whittier Narrows Operable Unit (WNOU) will, in fact, address the southern flow of contamination from SEMOU. This fact is clearly addressed in the Whittier Narrows Operable Unit Feasibility Study Addendum. "... selecting remedial actions employing treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of hazardous substances as a principal element of the action."*

**EPA's Response.** EPA concurs that implementation of Alternative No. 3, in conjunction with the Whittier Narrows OU remedy, best meets EPA's goals for the South El Monte OU interim remedy. Alternative No. 3 has been selected in this ROD.

**Art Weiss Industrial Properties Comment No. 2.** *Currently the Shallow Zone Extraction Pilot Program (SEPP) provides a degree of hydraulic containment and removes a significant mass of VOC from the shallow aquifer.*

*As a containment measure, the SEPP could be considered redundant once EPA's WNOU remedy becomes operational. As a VOC mass removal or source control measure, however, the SEPP's value will not be diminished by EPA's remedy. It can be argued, therefore, that in the long run, the SEPP's main role will be VOC mass removal. Because EPA remedies in the San Gabriel Basin are all oriented toward containment, the SEPP should not be included in the record of decision (ROD).*

**EPA's Response.** For clarification, although EPA's interim remedies selected to date in the San Gabriel Basin primarily focus on containment, mass removal and source control have also been considered as secondary objectives for some remedies. EPA concurs that the primary benefits from the SEPP are related to source control, rather than containment. Although EPA has not included the SEPP as a specific component of the interim remedy in this ROD, EPA believes that additional source control and source removal activities, such as the SEPP, at individual facilities or groups of facilities in the South El Monte OU are an important component of the overall remedial efforts in the OU.

**Art Weiss Industrial Properties Comment No. 3.** *If Shallow Zone containment is included in the ROD for SEMOU, it is highly likely that EPA will specify a performance requirement rather than specifying the scope of the remedy. In other words, the ROD is more likely to say something to the effect that measures shall be implemented to prevent contaminants at a certain concentration from migrating out of the SEMOU. As currently operating, the SEPP may not achieve EPA's performance standard. Failure to meet EPA's performance standard could result in additional extraction wells and/or higher extraction rates.*

*Finally, operating the SEPP outside of the ROD affords a much greater degree of flexibility than if it is included in the ROD. This flexibility could be very important if groundwater quality changes occur in the future.*

**EPA's Response.** EPA concluded that, for this interim remedy, the additional benefits gained from the shallow zone source control component of Alternative No. 4 were not substantial enough to justify its higher costs and has not included shallow zone source control in this ROD. However, as noted above in the responses to several comments, EPA believes that source control/source removal actions such as the SEPP will be an important component of the overall cleanup activities in the South El Monte OU. EPA will continue to work with the RWQCB and South El Monte OU PRPs to ensure that source control activities occur in a flexible, cost-effective fashion at individual facilities or groups of facilities.

## 1.15 Responses to Comments from EEMUS Manufacturing Corp.

**EEMUS Manufacturing Corp. Comment No. 1.** *I support the EPA's selection of Alternative 3 from the Feasibility Study to address ground water contamination in the South El Monte Operable Unit (SEMOU). The Remedial Action Objectives outlined by the EPA will be met by implementation of Alternative 3 particularly when considering other efforts that are planned by the EPA in the adjacent Whittier Narrows Operable Unit.*

*At the October 27th EPA presentation of the solutions to the ground water contamination in the South El Monte Operable Unit (SEMOU) several individuals provided comment that Alternative 4 be implemented instead of Alternative 3. These requests do not take into consideration the need for providing a sound remedial approach but are the more is better solution.*

**EPA's Response.** EPA concurs that implementation of Alternative No. 3, in conjunction with the Whittier Narrows OU remedy, best meets EPA's goals for the South El Monte OU interim remedy. Alternative No. 3 has been selected in this ROD. EPA's evaluations conclude that the additional benefits gained from Alternative No. 4 are not significant enough to justify its much higher cost.

**EEMUS Manufacturing Corp. Comment No. 2.** *The addition of the shallow zone extraction barrier that would be added as the result of selection of Alternative 4 has already been implemented in the SEMOU. We believe that this project is beneficial and addresses shallow zone contamination removal in the southern area of the SEMOU. Adding this to the SEMOU ROD will not impact the EPA's overall solution to containment of contamination to the south in the intermediate ground water levels flowing from the SEMOU, El Monte and Baldwin Park Operable Units.*

**EPA's Response.** As noted above in the responses to several comments, EPA believes that source control/source removal actions such as the SEPP are an important component of the overall cleanup activities in the South El Monte OU.

For clarification, the selected remedy for the South El Monte OU addresses containment of groundwater contamination in the intermediate zone in the western portion of the South El Monte OU. The comment refers to containment to the south, rather than west. Containment to the south is a component of the Whittier Narrows OU remedy. The comment also references containment of contaminated groundwater flowing from the El Monte and Baldwin Park OUs. This remedy only addresses the contamination flowing out of the South El Monte OU.

**EEMUS Manufacturing Corp. Comment No. 3.** *The EPA, in its October 27th presentation of the solutions to the ground water contamination in the South El Monte Operable Unit (SEMOU) indicated that contamination from the SEMOU had migrated to Whittier Narrows. Some indication was also made that the EPA may attempt to recover costs for investigation and implementation of a remedial solution in the Whittier Narrow Operable Unit from the SEMOU participants. The EPA should consider the following issues if its costs for the Whittier Narrows project are allocated to others.*

1. *Many of the individuals designated as PRPs in the SEMOU have worked on the development of the feasibility study and contributed funding for this project voluntarily. The EPA should look to allocate any of their costs to those PRPs that have not contributed to these efforts.*
2. *There are properties in the SEMOU that are known to have soil contamination where the owners have made no effort to cleanup the sites. This unaddressed soil contamination has the potential of undermining the effectiveness and length of any ground water cleanup. These PRPs should be looked at by EPA for collection of any additional costs as their sites continue to be sources of contamination to ground water. .*

**EPA's Response.** EPA expects the South El Monte OU PRPs to allocate costs amongst themselves.

The allocation negotiations are the time to take into account past contributions, including facility-specific cleanup activities.

However, for any PRPs that do not resolve their liability, EPA will take into consideration any failure to contribute to past investigation and cleanup efforts.

**EEMUS Manufacturing Corp. Comment No. 4.** *There is evidence of ground water contamination flowing into the SEMOU and to Whittier Narrows from the Baldwin Park Operable Unit and the El Monte Operable Unit. The model provided by EPA shows the contamination flowing from these Operable Units to be under drinking water limits. EPA has taken the position that this level of contamination is not a factor at Whittier Narrows. The contamination that is flowing from these Operable Units is additive and there may have been slugs of higher concentrations that have entered or are yet to enter the SEMOU or Whittier Narrows from these neighboring Operable Units. If the EPA chooses to allocate costs for its' Whittier Narrows Operable Unit it is obligated to identify all those that potentially contributed to contamination, that would clearly include the Baldwin Park and El Monte Operable Units.*

**EPA's Response.** Regarding contamination flowing from Baldwin Park OU and El Monte OU, EPA acknowledges that some low-level contamination is migrating into the South El Monte OU. However, based on the available water quality and water level data from a number of monitoring wells installed upgradient of South El Monte OU source areas, EPA does not believe that any other OU is contributing a meaningful portion of the contamination that is to be addressed by this interim remedy or the interim remedy in the Whittier Narrows OU. Figures 2 and 3 in the proposed plan (and in this ROD) show the interpreted extent of VOC contamination in the South El Monte OU and nearby portions of surrounding OUs.

## 1.16 Responses to Comments from Aircraft Stamping Co., Inc.

**Aircraft Stamping Co. Comment No. 1.** *In your meeting of October 27, 1999 at South El Monte High School, EPA stated that in pumping and treating the intermediate zone, the water pumped or treated would either be discharged into the river bed or distributed to the water purveyors in that area. It would be my hope that the water purveyors would be given the first opportunity to purchase the water thereby alleviating some of the cost that would otherwise have to be borne by the EPA and/or the PRPs.*

**EPA's Response.** EPA's preference is that the treated water be supplied to water purveyors in the South El Monte OU. We are optimistic that the necessary agreements can be reached to allow the water purveyors to accept the water from the remedy.

**Aircraft Stamping Co. Comment No. 2.** *Will EPA be doing a cost benefit and health benefit to determine whether or not their project in the Whittier Narrows area is even necessary to order to protect the health and the environment?*

**EPA's Response.** EPA completed the Whittier Narrows OU Feasibility Study Addendum and released a Proposed Plan in October 1998. These documents describe the evaluations conducted to determine the need for an active remedy in the Whittier Narrows OU, including comparisons to the nine Superfund evaluation criteria. The ROD Amendment for the Whittier Narrows OU, issued in November 1999 further details the need for the selected remedy.

## 1.17 Responses to Comments from Mr. Robert Vanderbosch

**Mr. Vanderbosch Comment No. 1.** *I would like to offer the following comments on the Proposed Plan for the South El Monte Operable Unit (SEMOU). The selection of Alternative Three Intermediate Zone Control in Western South El Monte Operable Unit is the wisest choice for attaining EPA's goals as stated on page seven of the Proposed Plan. The extensive effort currently under way in the Whittier Narrows Operable Unit (WNOU) will, in fact, address the southern flow of contamination from SEMOU. This fact is clearly addressed in the Whittier Narrows Operable Unit Feasibility Study Addendum.*

**EPA's Response.** EPA concurs that implementation of Alternative No. 3, in conjunction with the Whittier Narrows OU remedy, best meets EPA's goals for the South El Monte OU interim remedy. Alternative No. 3 has been selected in this ROD.

**Mr. Vanderbosch Comment No. 2.** *Currently the Shallow Zone Extraction Pilot Program (SEPP) provides a degree of hydraulic containment and removes a significant mass of VOC from the shallow aquifer.*

*As a containment measure, the SEPP could be considered redundant once EPA's WNOU remedy becomes operational. As a VOC mass removal or source control measure, however, the SEPP's value will not be diminished by EPA's remedy. It can be argued, therefore, that in the long run, the SEPP's main role will be VOC mass removal. Because EPA remedies in the San Gabriel Basin are all oriented toward containment, the SEPP should not be included in the record of decision (ROD).*

**EPA's Response.** For clarification, although EPA's interim remedies selected to date in the San Gabriel Basin primarily focus on containment, mass removal and source control have also been considered as secondary objectives for some remedies. EPA concurs that the primary benefits from the SEPP are related to source control, rather than containment. Although EPA has not included the SEPP as a specific component of the interim remedy in this ROD, EPA believes that additional source control and source removal activities, such as the SEPP, at individual facilities or groups of facilities in the South El Monte OU are an important component of the overall remedial efforts in the OU.

**Mr. Vanderbosch Comment No. 3.** *If Shallow Zone containment is included in the ROD for SEMOU, it is highly likely that EPA will specify a performance requirement rather than specifying the scope of the remedy. In other words, the ROD is more likely to say something to the effect that measures shall be implemented to prevent contaminants at a certain concentration from migrating out of the SEMOU. As currently operating, the SEPP may not achieve EPA's performance standard. Failure to meet EPA's performance standard could result in additional extraction wells and/or higher extraction rates.*

*Finally, operating the SEPP outside of the ROD affords a much greater degree of flexibility than if it is included in the ROD. This flexibility could be very important if groundwater quality changes occur in the future.*

**EPA's Response.** EPA concluded that, for this interim remedy, the additional benefits gained from the shallow zone source control component of Alternative No. 4 were not substantial enough to justify its

higher costs and has not included shallow zone source control in this ROD. However, as noted above in the responses to several comments, EPA believes that source control/source removal actions such as the SEPP are an important component of the overall cleanup activities in the South El Monte OU. EPA will continue to work with the RWQCB and South El Monte OU PRPs to ensure that source control activities occur in a flexible, cost-effective fashion at individual facilities or groups of facilities.

## **1.18 Responses to Comments from Geosystem Consultants, Inc. (representing the South El Monte OU Participants)**

**Geosystem Consultants Comment No. 1.** *Overall, the SEMOU Participants and Geosystem concur with EPA's selection of Alternative 3 as the preferred remedy in the Proposed Plan. Moreover, the SEMOU Participants and Geosystem are encouraged by EPA's willingness to entertain the use of existing infrastructure in the preferred remedy. This existing infrastructure is owned by the two SEMOU water purveyors whose wells have been impacted by volatile organic compounds (VOCs); namely the San Gabriel Valley Water Quality Company (SGVWC) and the City of Monterey Park. The SEMOU Participants and Geosystem have maintained all along that using existing infrastructure is both practical and cost-effective. Just as importantly, it may help get the remedy implemented several years earlier than if the "conventional" approach were adopted.*

**EPA's Response.** Comment noted. EPA concurs that there are a number of potential schedule and cost benefits associated with using existing water purveyor infrastructure as part of remedy implementation. EPA will continue to work towards accelerated implementation of the remedy in the South El Monte OU and supports the use of existing water supply wells and facilities as much as possible to meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including the water purveyors, to reach these agreements in a timely manner.

**Geosystem Consultants Comment No. 2.** *Shallow Zone Extraction Barrier Pilot Program. As EPA is aware, Cardinal Industrial Finishes (Cardinal) and, more recently, the San Gabriel Basin Water Quality Authority (WQA) have long advocated some type of "early action" in the SEMOU. In brief, the stated objective of the early action has consistently been to inhibit the migration of high VOC concentrations in the shallow zone toward Whittier Narrows and to remove VOC mass. After years of effort; and with the enthusiastic support of the state regulatory agencies, an early action was initiated in September 1999. Specifically, the SEMOU shallow zone extraction barrier pilot program (SEPP) became operational. The SEPP involves the extraction of a total of approximately 1,100 gpm from two extraction wells, treatment using liquid-phase granular activated carbon, and recharge of the treated ground water back into the shallow zone aquifer via engineered infiltration galleries. Based on the influent concentrations to the treatment systems, Geosystem estimates that the SEPP will remove around 72 pounds of VOCs per month (866 pounds per year) from the shallow zone aquifer. Moreover, ground water level data suggest that the combined effect of extraction via the two wells and recharge via the two infiltration galleries has created a hydraulic barrier that inhibits most, if not all, VOC migration at concentrations over 200 µg/l.*

*The SEMOU Participants and Geosystem believe that an early action program that removes 72 pounds of VOCs per month and that achieves even partial hydraulic containment is a worthwhile effort. In the Proposed Plan, however, EPA does not mention the SEPP other than as a component of Alternative 4, which is not EPA's preferred remedy. While not advocating the selection of Alternative 4 as the preferred remedy, Geosystem and the SEMOU Participants believe that their efforts to inhibit shallow zone VOC migration toward Whittier Narrows and to remove VOC mass from the shallow zone aquifer should be*

*acknowledged in the Proposed Plan. Indeed, Geosystem and the SEMOU Participants believe that the SEPP should be given time to have a beneficial impact on downgradient ground water quality before EPA finalizes its plans for the fund-lead remedy in the Whittier Narrows Operable Unit (WNOU). Even if EPA believes the SEPP is or could be redundant because of its Whittier Narrows remedy, it could still be acknowledged and given credit as a VOC mass removal and/or source control measure.*

**EPA's Response.** EPA appreciates the efforts of the various entities, including Cardinal Industrial Finishes, other South El Monte OU PRPs and the WQA, that have stepped forward to fund installation and operation of the SEPP. Source removal actions like the SEPP provide considerable long-term benefits in cleaning up South El Monte OU groundwater. Although it has not been selected as a specific component of the interim containment remedy described in this ROD, EPA believes that source control/removal activities, such as the SEPP, at individual facilities or groups of facilities in the South El Monte OU will continue to be an important component of the overall remedial efforts in the OU. EPA will continue to work with the RWQCB, South El Monte PRPs and other local stakeholders, such as the WQA, to ensure that appropriate source control actions are implemented in the South El Monte OU.

EPA also acknowledges that operation of the SEPP does provide partial containment of high-level contamination migrating away from facilities in the South El Monte OU. However, the degree of containment provided by the SEPP does not mitigate the need for containment of shallow and intermediate groundwater contamination in the downgradient Whittier Narrows OU. If it continues to operate for a number of years, the SEPP will eventually affect the contaminant concentrations observed at containment wells in Whittier Narrows. But, EPA does not expect that the SEPP will significantly change the size of the area requiring containment in Whittier Narrows for many years to come.

Geosystem Consultants Comment No. 3. **Identification of SEMOU PRPs.** *The search for PRPs in the SEMOU involved sending a chemical use questionnaire to selected industrial/commercial facilities. It is Geosystem's understanding that the questionnaire recipients were selected based on a "drive-by" or "windshield" survey by Los Angeles Regional Water Quality Control Board (LARWQCB) personnel. If the completed questionnaires indicated that chlorinated solvents were used, stored, or handled at a particular facility, LARWQCB personnel conducted a physical site inspection. The inspections focused on features such as chemical storage areas, degreasing units, subsurface clarifiers, stained or degraded surface paving, and the like. Facilities at which LARWQCB personnel suspected releases may have occurred were required to conduct preliminary subsurface investigations of soil and, at some facilities, ground water quality.*

*Because chemical use questionnaires were not sent to every commercial and industrial facility in the SEMOU, it is almost certain that not all solvent users were identified. Furthermore, the source identification program did not address anything other than the then current land use. As such, businesses that had used, stored, or handled solvents in the past, but which had ceased operating by the time the questionnaires were issued, escaped LARWQCB's follow-up inspections. The industrial properties in the SEMOU are predominantly small and most have had multiple owners and/or operators over the last 40 to 50 years. Accordingly, it is almost certain that many facilities that should have been inspected were not identified. Moreover, there are anecdotal indications that some questionnaires may not have been filled out correctly and that housekeeping at certain facilities improved dramatically prior to LARWQCB's inspections; thus, prospective PRPs may have avoided having to conduct subsurface investigations. Improvements in housekeeping at some facilities reportedly included remodeling and repaving.*

*Based on the above, Geosystem and the SEMOU Participants believe that there are more, as yet unidentified, PRPs in the SEMOU and that past land use should be considered in a renewed attempt to identify more PRPs, and spread the financial burden of the SEMOU remedy more equitably.*

**EPA's Response.** Given the great number of relatively small industrial facilities present in the South El Monte OU, it is likely that some potential contaminant sources have not been identified. In addition to the "windshield" surveys, the RWQCB reviewed public records to identify potential solvent users. Overall, EPA believes that the RWQCB's source identification efforts in the South El Monte OU were very thorough. EPA is still collecting data and evaluating individual facilities in the South El Monte OU. EPA expects to name additional PRPs to participate in implementation of this remedy.

If the South El Monte OU Participants have relevant information about specific facilities that were not investigated by the RWQCB, they should present this information to EPA so that it can be determined if additional investigation is warranted.

**Geosystem Consultants Comment No. 4. Site-Specific Remediation.** Drafts of several of the early RI/FS documents included language to the effect that remediation at individual SEMOU facilities is critical as part of a broader source mitigation program. Specifically, Geosystem and the SEMOU Participants reasoned that the systematic elimination of significant vadose zone contamination and/or ground water "hot spots" is of paramount importance to the success of any remedial alternative, be it containment or otherwise. In response to requests from EPA, however, the language pertaining to site-specific remediation was ultimately deleted from the text of the final deliverables. In parallel with the above, there are several SEMOU facilities with significant vadose zone and/or ground water contamination that have not been forced by local and state regulatory agencies to remediate. By way of example, a Cleanup and Abatement Order (CAO) issued by the LARWQCB to a SEMOU PRP in 1986 has still not been enforced to this day. In another instance in 1987, the LARWQCB refused a PRP permission to initiate a vapor extraction system to mitigate contamination by alcohols, ketones, and aromatic VOCs on the basis that "evidence" of PCE contamination would be destroyed.

More recently, LARWQCB has begun to rectify this situation by applying pressure on certain PRPs to initiate site-specific vadose zone remediation programs and/or ground water remediation programs. Geosystem and the SEMOU Participants believe that more vigorous regulatory agency action against recalcitrant PRPs should be a critical component of the remedy in the SEMOU.

**EPA's Response.** The commentor does not provide enough information for EPA to speak to the specific references regarding the lack of site-specific cleanup action. EPA concurs that site-specific actions are an important component of the overall South El Monte cleanup. EPA will continue to work with the RWQCB and South El Monte OU PRPs to ensure that appropriate source control activities occur at individual facilities or groups of facilities.

**Geosystem Consultants Comment No. 5. Inflow of Contaminants from Other Areas.** Consistent with EPA's presumed remedy of containment using some type of ground water pump-and-treat system, the emphasis in the SEMOU RI was rightly on where the contaminants are going rather than where they came from. This emphasis was such that during the preparation of the RI/FS deliverables, EPA repeatedly requested that any references to the possible inflow of contaminants to the SEMOU from adjacent areas be deleted. However, the sources of contamination are critical to the cost allocation process, without which there may not be a viable PRP group to fund the remedy. In that context, there are several strong indications that inflows of contaminants are occurring or have occurred in the past. These indications are as follows:

- Perchlorate has been reported in ground water samples collected from two wells in the SEMOU; a City of Monterey Park well in the Whittier Narrows Golf Course (Well No. 12) and in an EPA multiport monitoring well on Meeker Avenue (Well No. EPAW417). So far as Geosystem is aware, perchlorate in the Main San Gabriel Basin is almost exclusively attributable to sources in the Baldwin Park Operable Unit (BPOU). While the isolated occurrence of perchlorate in Well No. 12 is difficult to explain, the proximity of Well EPAW417 to the BPOU is a strong indication that

contaminants, possibly including VOCs, from that operable unit have impacted SEMOU ground water.

- EPA's own interpretations of VOC distribution in the intermediate zone have consistently shown a plume extending from Whittier Narrows to the northeastern corner of the SEMOU, at which point it terminates with an arbitrary straight line immediately southwest of the BPOU. Although EPA stops short of showing a continuous VOC plume extending from the WNOU into the BPOU, the inference is clearly that it does. Moreover, it is likely that the isolated areas of higher VOC concentration along the west side of the San Gabriel River are attributable to migration from the BPOU. In other words, these apparently isolated areas may be the residual of a larger, more concentrated VOC plume that has since largely dissipated. Despite having largely dissipated, however, VOCs migrating out of the BPOU have contributed to the overall VOC contamination in the WNOU.
- The area of high VOC concentrations in the so-called "duck farm" area on the eastern SEMOU boundary appear to originate from a source or sources east of the San Gabriel River and the 605 Freeway. Again, this and other areas of higher VOC concentrations have probably contributed to overall ground water contamination in the SEMOU and the WNOU.
- Ground water modeling during the SEMOU FS indicates that the active and formerly active production wells in the northwestern corner of the SEMOU create significant pumping depressions in the intermediate zone and possibly in the shallow zone. These depressions may be (or may have been) large and deep enough to draw in ground water from the north and northwest, i.e., ground water that may contain contaminants originating from the adjacent El Monte Operable Unit.

Geosystem had planned to use the basin-wide CFEST model to perform particle track modeling to show that ground water and, hence, VOCs from adjacent operable units could enter the SEMOU. Unfortunately, the particle tracking module of the CFEST model was not working correctly in the version of the model provided to Geosystem by EPA. Considering the widespread occurrence of VOCs throughout the San Gabriel Basin, however, it is almost inconceivable that VOC-contaminated water from one or more of the surrounding operable units has not flowed into, through, and out of the SEMOU at some time in the past. Even if VOCs are not currently entering the SEMOU from adjacent operable units, past VOC migration into the SEMOU has still contributed significantly to the cost of the SEMOU remedy. As EPA is well aware, the cost allocation process is often based on the volume of impacted ground water as well as the mass and concentrations of VOCs in ground water. Thus, a large volume of ground water contaminated by only low concentrations of VOCs still contributes significantly to the cost of the remedy.

**EPA's Response.** There is evidence that some low-level contamination has migrated into the South El Monte OU from adjacent OUs. However, based on the available water quality and water level data from a number of monitoring wells installed upgradient of South El Monte OU source areas, EPA does not believe that any other OU is contributing a meaningful portion of the contamination that is to be addressed by this interim remedy or the interim remedy in the Whittier Narrows OU. The areas of contamination being addressed in these interim remedies are in the southwest portion of the South El Monte OU. As shown in Figures 2 and 3, this is a considerable distance from the Baldwin Park OU contamination present in the northeast corner of the South El Monte OU.

In response to some of the specific issues cited in the comment:

- Low concentrations of perchlorate (similar to those detected in the City of Monterey Park and EPA monitoring wells referenced in the comment) have recently been detected in the shallowest zone in a multi-port monitoring well located within one of the primary source areas in the South El Monte OU. This indicates the potential presence of a local perchlorate source.

- Based on available hydrogeologic data, EPA does not believe that the isolated area of high VOC concentrations in the shallow aquifer in the far eastern portion of the South El Monte OU has any impact on groundwater contamination being addressed by the interim containment remedies in the South El Monte and Whittier Narrows OUs. Figures 2 and 3 in the Proposed Plan (and in this ROD) show the interpreted extent of VOC contamination in the South El Monte OU and nearby portions of surrounding OUs
- EPA has installed an additional monitoring well to help assess the potential impact of El Monte OU contamination on the wells in the pumping center west of the South El Monte OU.

EPA does not believe that available data support the conclusion stated in the comment that "past VOC migration into the SEMOU has still contributed significantly to the cost of the SEMOU remedy." The remedy in the South El Monte OU will address very specific areas of contamination that clearly originate in South El Monte OU source areas. The data clearly indicate that if not for contaminant releases from South El Monte OU facilities, there would be no need for the interim remedies selected in the South El Monte and Whittier Narrows OUs. Figures 2 and 3 in the Proposed Plan (and in this ROD) show the interpreted extent of VOC contamination in the South El Monte OU and nearby portions of surrounding OUs.

**Geosystem Consultants Comment No. 6.** *Central Basin Ground Water Quality. Preventing VOCs from migrating through Whittier Narrows and into the adjoining Central Basin is an undeniably valid objective and there has been much discussion during the WNOU FS about the relative merits of allowing only nondetectable VOC concentrations into the Central Basin versus concentrations between detection limits and MCLs. There has, however, been no discussion whatsoever about existing ground water quality in the Central Basin. Readers of San Gabriel Basin RI/FS documents could be forgiven for assuming that Central Basin ground water is pristine in every respect. In reality, however, the Central Basin has its own ground water contamination problems attributable to decades of industrial activity over a longer period of time and at a high intensity than in the San Gabriel Valley. While Central Basin ground water contamination should in no way change the remedial objectives for the San Gabriel Basin operable units, its acknowledgment would help keep things in perspective.*

**EPA's Response.** It is true that there are numerous groundwater contamination problems across the large Central Basin. However, the Montebello Forebay portion of the Central Basin immediately south of Whittier Narrows Dam is relatively free of contamination except for that migrating in from the San Gabriel Basin. In most of the Central Basin, the drinking water aquifers are relatively deep and isolated from the shallow aquifers by competent aquitards. However, in the Montebello Forebay, these drinking water aquifers are shallower and are connected directly with the shallow aquifers and the Montebello Forebay is the primary recharge location for the entire Central Basin. These physical features highlight the significant threat to the Central Basin drinking water aquifers posed by the San Gabriel Basin contamination.

## 1.19 Responses to Comments from R Brown

**R Brown Comment No. 1.** *I must object to the lack of an alternative that would limit the pumping of contaminated water to near where it was contaminated. In South El Monte the groundwater is very shallow and any spills of chemicals will quickly pollute the shallow zone. As a result, I request the consideration of an alternative that only involves pumping of water from the shallow zone in South El Monte Operable Unit.*

*In addition on the west side of the South El Monte Operable Unit there long has been a ground water depression caused by over pumping by well owners. It is this high demand for ground water that has resulted in the contamination migrating down into the immediate zone from the shallow zone. If there*

*was less pumping of water on the west side of this operable unit the contaminated water would have migrated south which is the historic direction of ground water movement in the area where the contamination occurred.*

**EPA's Response.** There is considerable contamination in the intermediate zone in the South El Monte OU migrating towards production wells in the west. Regardless of the reasons for westerly flow, at this time it is not feasible to eliminate flow towards the west. Accordingly, to meet EPA's objectives for this remedy (described in Section 8), any remedy implemented in the South El Monte OU must include containment in the western intermediate zone.

**R Brown Comment No. 2.** *A few years ago the EPA in the Baldwin Park Operable Unit strongly advised the water pumpers in the valley to stop drilling wells away from the plume and start installing clean up equipment on wells that would extract water from the contaminated zone. This is a good policy. And it should be part of the solution in the South El Monte Operable Unit. The EPA fact sheet shows that the highest levels of contamination are only east of Rosemead Blvd in the shallow zone. Only with removal of the highly contaminated water will the public see a quick solution to the South El Monte problem. Therefore I favor an alternative that removes and treats water from the shallow zone.*

**EPA's Response.** The selected remedy does in fact shift extraction to focus on the contaminated portions of the aquifer as is recommended in this comment. EPA's expectation is that local water purveyors will take the treated water from the remedy. These purveyors would reduce extraction from deeper or downgradient production wells that are currently extracting from less contaminated or uncontaminated areas.

Although this ROD selects Alternative No. 3 as the interim remedy for the South El Monte OU, EPA believes that shallow zone source control at individual facilities or groups of facilities will continue to be an important component of overall cleanup in the South El Monte OU. EPA will work with the Regional Water Quality Control Board to ensure that appropriate shallow zone cleanup is occurring.

**R Brown Comment No. 3.** *The ground water users of this basin have for a long time had an effort to deal with the over draft of ground water to the west of the South El Monte Operable Unit. The Cooperative Water Exchange Agreement has the Main San Gabriel Basin Watermaster collect money from valley users of ground water to pay for the higher cost imported water to be delivered to the City of Alhambra through USG 5 by Upper San Gabriel Valley Municipal Water District so the City of Alhambra can refrain from pumping ground water in the area of the water table depression. The increased pumping of ground water from the intermediate zone on the West Side of the South El Monte Operable Unit will complicate the long term correction of the west side ground water over draft. This can be avoided if the EPA selects an alternative that emphasizes pumping from the shallow zone near to where the contamination originally occurred. Alternative 4 as published is closest to my ideal solution, and if there is not to be an only shallow zone pumping alternative, I would favor Alternative Four.*

**EPA's Response.** EPA's hope is that the selected remedy will not result in a net increase in pumping from the intermediate zone in the western portion of the South El Monte OU. The most likely implementation scenario is for the treated water to go to local water purveyors in the vicinity. These purveyors would then reduce the amount they are currently extracting from other nearby wells. As noted above in the response to Comment No. 1, because of the magnitude and extent of contamination present in the intermediate zone, EPA must select a remedy that includes intermediate zone pumping to prevent the further spread of this contamination and to protect water supply wells and areas of the aquifer that are currently uncontaminated.

## 1.20 Responses to Comments from Mr. Allan Hill

**Allan Hill Comment No. 1.** *I recommend that Alternative 4 be implemented. Alternative 3 does not include shallow zone source control which is where a substantial part of the problem exists.*

**EPA's Response.** EPA concluded that, for this interim remedy, the additional benefits gained from the shallow zone source control component of Alternative No. 4 were not substantial enough to justify its higher costs. This ROD selects Alternative No. 3 for the South El Monte OU remedy. However, as is noted throughout this responsiveness summary, EPA believes that source control/source removal actions are an important component of the overall cleanup activities in the South El Monte OU. EPA will continue to work with the RWQCB and South El Monte OU PRPs to ensure that appropriate source control activities occur at individual facilities or groups of facilities.

## 1.21 Responses to Comments from Congressman Matthew G. Martinez

**Congressman Martinez Comment No. 1.** *I am a strong supporter of EPA's position that the polluters should pay for the cost of the cleanup. For that reason, I think it is important that we made sure that those companies selected have, in fact, been responsible for the pollution through good scientific determinations. Many of those PRP's which were named by the California Water Regional Control Board did nothing but have shallow soil contamination with no physical scientific evidence showing a linkage to ground water. Even through EPA may be able to hold any PRP named accountable, I believe that the spirit of the law and of EPA's credo would stipulate that we do not punish people that didn't do anything. There is no way that you will [sic]*

*It is my hope that when EPA issues their special notice letters to the PRPs, they will only notify those that had scientific variable traceable link to ground water pollution and not those companies that simply had minor soil contamination.*

**EPA's Response.** In the South El Monte OU, the Regional Board's role has been to oversee and direct investigations at industrial facilities suspected of contaminant releases and, if necessary, to require site-specific cleanup actions. However, EPA has the responsibility for identifying and naming the PRPs that will be responsible for implementing the remedy selected in this ROD. EPA will only name as PRPs those companies or individuals where there is sufficient scientific evidence to support a conclusion that activities at their property have contributed to the groundwater contamination.

It is important to understand that the historic nature of many of the contaminant releases combined with the physical conditions in the South El Monte OU (and nearly everywhere else in the San Gabriel Basin), often complicate the evaluation of the link between soil contamination and groundwater contamination. EPA carefully reviews all of the available data before making a determination that the owners or operators of a specific facility are PRPs. EPA intends to only name PRPs where there is sufficient information to reasonably conclude that the contaminant releases at the facility have resulted in groundwater contamination.

**Congressman Martinez Comment No. 3.** *It is my opinion that soil cleanup should be the duty and responsibility of the California Water Regional Control Board. I would further hope that those PRPs which had only soil contamination, but no traceable link to ground water, would also receive third party litigation protection from EPA.*

**EPA's Response.** To date, the Regional Board has maintained the responsibility for directing all cleanup actions (both soil and shallow groundwater) at individual facilities. EPA anticipates that for the foreseeable future, the Regional Board will continue in this capacity.

After EPA has determined which parties will receive Special Notice Letters for implementation of the interim remedy selected in this ROD, EPA may notify those parties not receiving Special Notice that they are not currently suspected of having contributed to groundwater contamination in the South El Monte OU. EPA cannot offer third party litigation protection to parties such as these except through settlements resolving potential liability. EPA will consider making settlement offers to some or all of these parties if circumstances warrant.

**Congressman Martinez Comment No. 4.** *I am very interested in reviewing which PRP's the EPA intends to include, and which will not be included. If such a list has not yet been compiled, I would appreciate notification at least 10 days in advance of issuance of the notice letters.*

*If EPA is not going to take what I believe to be a reasonable approach as stated above as to who should and should not receive notice letters, would you please reply to me and give me your reasons regarding this subject.*

**EPA's Response.** Because this information may be used in potential enforcement actions, EPA cannot share its determinations regarding Special Notice recipients prior to the issuance of the letters. However, EPA can keep the Congressman informed as to the expected date for issuing Special Notice Letters.

EPA has every intention of following a reasonable, technically-sound approach in making the final determination as to who will receive Special Notice Letters for this remedy.

## 2 Responses to Oral Comments

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In this section, EPA provides responses to oral comments received at the public meeting held on October 27, 1999. EPA responded to a number of questions directly at the public meeting. This section provides responses only to formal oral comments that were not fully addressed at the meeting. Formal oral comments were received from five parties: Mr. Royal Brown, a member of the public; Mr. Philip Miller, representing Geosystem Consultants, consultants for the South El Monte OU Participants; Mr. Bill Robinson, representing the Upper San Gabriel Valley Municipal Water District; Mr. Kirby Brill, representing the San Gabriel Basin Water Quality Authority; and Mr. Lawrence Felix, representing the South El Monte OU Participants. The full transcript of the public meeting is available at EPA's Superfund Records Center at EPA's Regional Office in San Francisco, and locally at two information repositories: the West Covina Library and the Rosemead Library.

### 2.1 Responses to Comments from Mr. Royal Brown

**Mr. Brown Comment No. 1, Transcript Page 25, Line 24.** *First of all, the presentation tonight simplified the groundwater flow in this area drastically. It completely forgot the vertical flow, up and down, as an important part of the component of what happens in geology.*

*It is not just a single zone that's separated from another area. This is not a pressure aquifer in here, this is free-flowing ground water, and as a result there can be interchange upon the amount of pumping that occurs. So any pumping you do from a particular area will have a tendency even to move water through clay; and clearly, the simplified presentation that we've heard tonight --it appears that that has been the idea of the EPA all along -- is to go with a simplified presentation.*

*Frankly, I've seen elsewhere in groundwater basins that a major component of the problem has been, historically, vertical movement of water; therefore, a simplified concept that we have a separate action possible for shallow and another action for intermediate is really not reflective of what mother nature has set down here as the geology of this area.*

*If we had clearly identifiable, sealed areas with a common water table level, there wouldn't be much movement; but there is no clearly identifiable, sealed zone that's constant. This area was laid down by flood action, and it is very complex; water can move different directions because of water pressure and the water table and water pumping.*

**EPA's Response.** EPA acknowledges that there is vertical movement of water in the South El Monte OU and the evaluations of groundwater flow performed during the RI/FS did take into account potential vertical flow. However, unlike most of the San Gabriel Basin, where the aquifer is not clearly separated into specific zones, the South El Monte OU does have distinctly different shallow and intermediate aquifer zones. It is important to account for these differing groundwater conditions in the evaluation and selection of remedial actions in the South El Monte OU. In much of the South El Monte OU, there is a fairly substantive sequence of fine-grained materials that limits vertical movement of groundwater and results in relatively large head differences (up to 25 feet) between the shallow and intermediate zones. Further, in portions of the OU groundwater flow directions are very different between the shallow and intermediate zone. These differing flow directions indicate that intermediate zone pumping has limited impacts on the shallow zone.

**Mr. Brown Comment No. 2, Transcript Page 27, Line 5.** *An important part of the evaluation of this area is the pumping depression that has historically occurred west of this area. That pumping depression basically is the cause of the water moving west.*

*If we go back and look at early models of this basin, the constant flow was toward Whittier Narrows. It's only with the pumping that we can establish that there's a constant flow, now, to avoid a fill-in of the pumping depression to the west.*

*So basically, the important thing here in the long run for the public is the flow to the south, both in the intermediate zone and in the shallow zone. As a result, only Alternative 4 really protects the public interest, and that is of all the groundwater.*

*Alternative 3 does not protect the shallow area. It only directs action toward the intermediate zone; therefore, I strongly urge the EPA to discard Alternative 3 as not fulfilling the needs of the American public for protection of its groundwater, the groundwater that's owned in California by all the citizens of California, no matter whether they live in San Gabriel Valley or in northern California or over on the Colorado River.*

*According to our constitution in California, all the people of California own this water; and as a result of that, we've got to protect all of it, not just one zone.*

**EPA's Response.** Regardless of the reasons for the westerly flow in the intermediate zone, there is considerable contamination in the intermediate zone in the South El Monte OU migrating towards production wells in the west. Based on current purveyor operations in the San Gabriel Basin, there is no indication that this westerly flow will dissipate in the foreseeable future. Accordingly, to meet EPA's objectives for this remedy (described in Section 8 of Part II), any remedy implemented in the South El Monte OU must include containment in the western intermediate zone.

All of the contamination (both shallow and intermediate) flowing towards the south will be contained by EPA's remedy in the downgradient Whittier Narrows Operable Unit. Concurrent with the containment actions in the South El Monte and Whittier Narrows OUs, EPA will continue to work with the RWQCB and South El Monte PRPs to ensure that source control and source removal actions are implemented to reduce contaminant loading and migration in the shallow zone.

**Mr. Brown Comment No. 3. Transcript Page 28, Line 9.** *There is a current project that points toward cleanup of the shallow zone done by the Water Quality Authority. I'm afraid the EPA has not had good data about that project.*

*Historically, what is estimated is one thing; but that project is about to go online and produce real costs. When you have real costs, you can find real benefits, not projected benefits.*

*There are two areas where we're going to see real benefits from that shallow project bound by the Water Quality Authority. First of all, there's direct removal of the chemicals from the groundwater at the wells at which they're pulling the water from;*

*Secondly, they treat that water, clean it up to above drinking water standards and discharge it as recharge water south of the wells. That water adds to the groundwater flow going in the shallow zone -- as the EPA calls it -- towards the south.*

*Since it's good quality water -- better than drinking water requirements -- and there is pollution to the south, that good water will dilute the existing pollution to the south of this project. That's a second major benefit.*

*If the water was sold to water companies by the Water Quality Authority, we would not be getting that benefit. So the Water Quality Authority's project really gives us two classes of benefits, and that's very important for the quick cleanup of the groundwater in this area.*

*I think that realization, an understanding of the costs and the time factor, is what's necessary for the EPA to understand that in the long run, a quick cleanup with lots of groundwater extraction immediately with*

*this cleanup and recharge action could reduce the costs of Alternative 4 in a major way. Therefore, I think it's important for the public to rise up and demand that both local people and responsible parties can take their local property, do shallow water treatment easily, and discharge it to the drainage system that we have in this area.*

**EPA's Response.** Although this ROD does not select Alternative No. 4 as the interim remedy for the South El Monte OU, EPA agrees that the Water Quality Authority's shallow extraction pilot project does provide substantial benefits towards long-term cleanup of the South El Monte OU. EPA believes that shallow zone source control actions (such as the Water Quality Authority's project) at individual facilities or groups of facilities will continue to be an important component of the overall cleanup activities in the South El Monte OU. EPA will work with the Regional Water Quality Control Board to ensure that appropriate shallow zone cleanup is occurring. These source control activities are critical to accelerating cleanup of the groundwater in the South El Monte and Whittier Narrows OUs.

**Mr. Brown Comment No. 4. Transcript Page 29, Line 25.** *We have a whole series of rubber dams. Any water -- some percent of all the water that falls in this water shed is conserved by these rubber dams. That means if you dump it into the waste channel, the water is captured again, put into spreading basins, and is reused downstream by somebody from a well down there in Pico Rivera, Commerce, Downey, as drinking water. So we get a major benefit again.*

*So I think Alternative 4 -- if it would understand that any of this water dumped on the ground or dumped into a waste channel has a positive benefit for the public in Los Angeles area, that's important, because there is a serious pumping depression down in central basin that needs to be corrected. The more recharge we have, the more cleanup projects on the shallow zone, that means more drainage water coming toward the central basin, which means correction in the long run, pumping deficiency that we've historically had in the Montebello Forebay. So for those reasons, I think it's paramount upon the EPA to adopt Alternative No. 4.*

**EPA's Response.** This comment implies that Alternative No. 4 included discharge of treated water to surface water channels with subsequent flow into the Montebello Forebay as a component of the remedy. This is not the case. Just as in Alternative No. 3, the presumption is that the treated water from Alternative No. 4 would either be distributed to water purveyors or would recharge within the San Gabriel Basin. Further, an alternative that extracts water from the San Gabriel Basin (in the South El Monte OU) then discharges the treated water for recharge in the Montebello Forebay portion of the Central Basin would likely be cost prohibitive to implement. Neither EPA nor the South El Monte OU PRPs have water rights in the San Gabriel Basin. Thus, if water were extracted and allowed to leave the basin as part of this remedy, it would need to be off-set with the purchase of the replacement water. This would substantially increase the estimated operations and maintenance cost of the remedy.

## **2.2 Responses to Comments from Mr. Philip Miller, Geosystem Consultants, Inc. (representing the South El Monte OU Participants)**

**Mr. Miller Comment No. 1, Transcript Page 31, Line 13.** *The reason I don't get to do that tonight is we don't disagree with the EPA's Alternative 3 as the preferred alternative for South El Monte. Further, use of infrastructure water in the preferred alternative -- we've maintained all along that it makes sense technically and financially to use infrastructure water, namely, the San Gabriel Water Company and the City of Monterey Park. As an added bonus, we believe it will help get the remedy off the ground or part of the remedy off the ground rather than the years it would take to happen with the traditional route.*

**EPA's Response.** Comment noted. EPA concurs that there are a number of potential schedule and cost benefits associated with using existing water purveyor infrastructure as part of remedy implementation. EPA will continue to work towards accelerated implementation of the remedy in the South El Monte OU and support the use of existing water supply wells and facilities as much as possible to meet the objectives of the selected remedy described in this ROD. We are optimistic that the necessary agreements can be reached to allow the use of existing facilities and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders, including the water purveyors, to reach these agreements in a timely manner.

**Mr. Miller Comment No. 2, Transcript Page 32, Line 7.** *The first issue is that the early action project that was recently started up in South El Monte wasn't acknowledged in the proposed plan. As some of you may know, we started the system in September. We estimated we're moving 72 pounds of VOC a month, if concentrations stay more or less uniform. We think that's significant and should be given some acknowledgment in the proposed plan*

**EPA's Response.** EPA concurs that there are significant source control and mass removal benefits associated with operation of the shallow extraction pilot project (SEPP). EPA believes that source removal actions like the SEPP and other site-specific remediation activities occurring in the South El Monte OU provide considerable long-term benefits in cleaning up South El Monte OU groundwater.

**Mr. Miller Comment No. 3, Transcript Page 32 Line 15.** *The second issue is the strong suspicion that there are probably more, as yet, unidentified PRPs in the South El Monte Operable Unit.*

**EPA's Response.** With the large number of relatively small industrial facilities present in the South El Monte OU, it is likely that some potential sources of contamination have not been identified. Overall, EPA believes that the RWQCB's source identification efforts in the South El Monte OU have been very thorough. Extensive source identification and investigation activities occurred throughout the South El Monte OU and EPA is still collecting data and evaluating individual facilities. EPA expects to name additional PRPs to participate in implementation of this remedy.

**Mr. Miller Comment No. 4, Transcript Page 32, Line 18.** *Third is that the site-specific remediation has been under-emphasized throughout the RI/FS process.*

**EPA's Response.** The focus of the RI/FS and the interim remedy selected in this ROD is the regional groundwater contamination, rather than site-specific remediation of individual facilities. However, EPA concurs that site-specific actions are an important component of the overall South El Monte cleanup activities. EPA will continue to work with the RWQCB and South El Monte OU PRPs to ensure that appropriate source control activities are occurring at individual facilities or groups of facilities.

**Mr Miller Comment No. 5. Transcript Page 32, Line 21.** *And fourth -- and perhaps most significantly -- we think that there's a strong likelihood that contaminants from other operable units have migrated into the South El Monte Operable Units. In some cases they may have migrated right through the operable unit and into Whittier Narrows.*

*We understand EPA's emphasis in the RI/FS had to be where the contaminants were going to as opposed to where they came from; but at this stage in the process, with the impending cost allocation process, the issue of where the contamination came from comes much more to the forefront. We believe EPA should consider the possible contributions from other operable units in its cost recovery efforts for the Whittier Narrows Operable Unit.*

**EPA's Response.** EPA acknowledges that some low-level contamination has migrated into the South El Monte OU from adjacent OUs. However, based on the available water quality and water level data from a number of monitoring wells installed upgradient of South El Monte OU source areas, EPA does not

believe that any other OU is contributing a meaningful portion of the contamination that is to be addressed by this interim remedy or the interim remedy in the Whittier Narrows OU.

The remedy in the South El Monte OU will address very specific areas of contamination that clearly originate in South El Monte OU source areas. The data demonstrate that if not for contaminant releases from South El Monte OU facilities, there would be no need for the interim remedies selected in the South El Monte and Whittier Narrows OUs. Figures 2 and 3 in the Proposed Plan (and in this ROD) show the interpreted extent of VOC contamination in the South El Monte OU and nearby portions of surrounding OUs.

## 2.3 Responses to Comments from Mr. Bill Robinson, Upper San Gabriel Valley Municipal Water District (USGVMWD)

**Mr. Robinson Comment No. 1, Transcript Page 33, Line 20.** *I support the shallow zone source control plan even at an added cost of \$ million. I think cleanup using containment is a bad approach because it increases the long-term costs of the solution.*

*Perhaps the responsible parties are looking at this from a narrow perspective, from their own interests, and I think the EPA. needs to look at the total problem and the entire community interest when they choose an alternative.*

*I'm neutral on Alternative 3, but I've already said I support Alternative 4. I recommend that more attention be paid to the shallow aquifer.*

**EPA's Response.** Although EPA concurs that there are long-term benefits to any shallow zone source control actions in the South El Monte OU, EPA believes that the additional benefits of Alternative No. 4 as they relate to long-term groundwater containment (which is the goal of this remedy) are not large enough to justify the significant additional costs. However, EPA will continue to work with the Regional Water Quality Control Board to implement appropriate source removal and source control actions at specific facilities or groups of facilities in the South El Monte OU. This could include continued operation of the WQA's shallow barrier project.

**Mr. Robinson Comment No. 2, Transcript Page 34, Line 8.** *Some comments have been made tonight about the treatment of the cleaned up water -- the question of encouragement of distribution of the cleaned up water to customers or discharge to the aquifer -- and I think the EPA. should support the plan that maximizes the beneficial use of that water if it's discharged to the aquifer, if that helps the long-term community interests.*

*But I think you should also look real hard at working out deals that allow the cleaned up water to be distributed to customers. You have to balance that and pursue the best approach for the entire community, not necessarily for the responsible parties.*

**EPA's Response.** The intermediate zone contamination in the South El Monte OU that is migrating towards the west has had significant financial and operational impacts on the water supply wells operated by local water purveyors. EPA believes that the best use of the treated intermediate zone water is to provide it as drinking water supply to local purveyors. This will provide the greatest benefit to the local community whose water supply has already been impacted. EPA is optimistic that the necessary agreements can be reached to allow for local use of the treated water and will continue to encourage cooperation between South El Monte PRP representatives and local stakeholders to reach these agreements in a timely manner. If these agreements can not be reached in a timely manner, EPA will likely require aquifer recharge as the designated end use for the treated water.

**Mr. Robinson Comment No. 3, Transcript Page 34, Line 22.** *Just to wrap up, 20 years is a long time, and I just wish that we could increase the pace that we're crawling towards a solution. I mean, I don't want to come back here in 10 years. So I just urge the plan that reduces the long-term costs of the total solution. I believe that -- if you look at the community interests, I think that would be Alternative 4.*

**EPA's Response.** EPA's primary objective for this interim remedy is to provide containment of the regional groundwater contamination migrating away from source areas in the South El Monte OU. In that context, the additional present worth costs of Alternative No. 4 are not justified. However, this does not mean that source control and source removal actions will not continue in the South El Monte OU. Concurrent with implementation of this interim remedy, EPA will be continuing to work with the Regional Board to facilitate appropriate remedial actions at individual facilities or groups of facilities in the South El Monte OU. These parallel activities provide for a cost-effective approach to addressing the contamination in the South El Monte OU.

## **2.4 Responses to Comments from Mr. Kirby Brill, San Gabriel Basin Water Quality Authority**

**Mr. Brill Comment No. 1, Transcript Page 35, Line 9.** *First of all, I'd like to state Water Quality's support of EPA's objectives. I think the Remedial Action Objectives that were spoken of earlier we can stand behind 100 percent.*

*In support of those objectives, I think feel it's very important that the intermediate zone extraction system that's been explained, to the northwest, be implemented as soon as possible. The groundwater contamination is flowing to the northwest.*

*There are downgraded wells that are in the path of that contamination, so I think it's very important that we all move expeditiously towards a quick resolution of that project with quick implementation of that project.*

**EPA's Response.** Comment noted. EPA agrees that rapid implementation of the South El Monte OU remedy is critical given the existing impacts on water supply wells. EPA will continue to work towards accelerated implementation of the selected remedy in the South El Monte OU

**Mr. Brill Comment No. 2, Transcript Page 35, Line 24.** *In addition to that, I think we feel it's very important for the South El Monte shallow extraction barrier to remain operational. It was constructed and funded within a consensus of this community, and I think there was a realization of the need of that project and the positive impacts of that. I would certainly hate to see that project shut down because of lack of funding.*

*If that is best achieved through implementation or approval of Alternative 4 as EPA's proposed plan, then we would certainly support that. If there's other ways of keeping that shallow extraction barrier operational, we would support that as well.*

*I don't believe we're necessarily locked into one alternative or another and how it's named rather than the projects that are listed. I think that those should be implemented as quickly as possible, and in the case of the shallow extraction barrier that's already up and running -- as was mentioned earlier -- and already having significant positive benefits on the removal of contamination, I think it's very essential and crucial that that cleanup project remain operational.*

*I would underscore on some of the comments made earlier, that there will be significant long-term benefits that will occur with action occurring immediately. By keeping that project going, it has a strong likelihood of reducing the overall scope that would be required at a downgraded extraction barrier located at Whittier Narrows.*

*I really feel it's in everyone's best interests to move forward not only with the intermediate zone extraction and northwest of the operable unit, but maintaining the shallow extraction barrier. I think the overall fear with us and I believe fear of everyone in this room is that implementation of Alternative 3 will provide no incentive for financial participation to keep the shallow extraction barrier going.*

*If that concern is mitigated through other means, then we would certainly support those alternative actions. I think we feel, at least at this point in time, that's best achieved in including the barrier extraction plant as part of Alternative Plan 4.*

**EPA's Response.** Although this ROD does not select Alternative No. 4, or include the Water Quality Authority's SEPP as a specific component of the interim remedy, EPA fully supports its continued operation as a source control action that provides mass removal and partial containment of the most contaminated portion of the aquifer in the South El Monte OU. EPA will continue to work with the Regional Water Quality Control Board to ensure that appropriate site-specific cleanup occurs at South El Monte OU facilities or groups of facilities. These could potentially include mechanisms for ensuring continued operation of the shallow barrier project.

## 2.5 Responses to Comments from Mr. Larry Felix, South El Monte OU Participants

**Mr. Felix Comment No. 1- Transcript Page 38, Line 15.** *Early actions in the South El Monte Operable Unit have also been developed, signed to, and implemented due to the efforts of the same people responsible for the delivery of the Remedial Investigation/Feasibility Study. We encourage the continued operation of these early actions on the volunteer basis upon which they were undertaken.*

**EPA's Response.** EPA greatly appreciates the efforts of the South El Monte OU Participants in completing the Remedial Investigation and Feasibility Study for the South El Monte OU and spearheading implementation of the Shallow Extraction Pilot Project (SEPP) as an early action. EPA did not specifically include the SEPP as a component of the interim remedy selected in this ROD, however EPA remains very interested in continued implementation of source control and source removal actions in the South El Monte OU. EPA is encouraging the RWQCB and SEMOU PRPs to take the necessary steps to ensure that appropriate source control actions (such as the SEPP) continue at individual facilities or groups of facilities.

**Mr. Felix Comment No. 2- Transcript Page 38, Line 22.** *We would also now petition you, EPA, Regional Water Quality Control Board, Department of Toxic Substance Control, the San Gabriel Basin Water Quality Authority, and all other agencies and stakeholders responsible for the implementation of the remedy to use their creative abilities and to utilize whatever resources are currently available to them to develop programs and policies that address groundwater contamination problems in the South El Monte Operable Unit in a manner that provides equity to those who have brought us to this position.*

**EPA's Response.** As noted above, EPA appreciates the efforts of the South El Monte OU Participants in completing the Remedial Investigation and Feasibility Study for the South El Monte OU. EPA will continue to work with South El Monte OU PRPs and other local stakeholders to implement the interim remedy in the South El Monte OU in an efficient, cost-effective manner. EPA concurs that the effort already expended by members of the South El Monte OU Participants is a factor to be taken into account in allocating the costs of future remedial action.



## References

# References

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California Department of Water Resources. *Planned Utilization of Groundwater Basins, San Gabriel Valley, Appendix A: Geohydrology*. Bulletin 104-2. 1966.

CDWR. See California Department of Water Resources

EPA. See U.S. Environmental Protection Agency.

Geosystem Consultants, Inc. *Remedial Investigation Report, Interim Remedial Investigation/Feasibility Study, San Gabriel Basin, Los Angeles County, California*. Prepared for the SEMOU Participants. August 1998.

\_\_\_\_\_. *Feasibility Study Report, Interim Remedial Investigation/Feasibility Study, South El Monte Operable Unit, San Gabriel Basin, Los Angeles County, California*. Prepared for the SEMOU Participants. April 1999.

U.S. Environmental Protection Agency. *Supplemental Sampling Program Report, San Gabriel Basin, Los Angeles, California*. Prepared by CH2M HILL. 1986.

\_\_\_\_\_. *CERCLA Compliance with Other Laws Manual, Part I (Interim Final)*. OSWER Directive 9234.1-01. 1988a.

\_\_\_\_\_. *Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites*. OSWER Directive 9283.1-2. 1988b.

\_\_\_\_\_. *CERCLA Compliance with Other Laws Manual, Part II*. OSWER Directive 9234.1-02. 1989.

\_\_\_\_\_. *Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions*. OSWER Directive 9355.0-30. April 22, 1991a.

\_\_\_\_\_. *Interim San Gabriel Basin Remedial Investigation Report, Los Angeles County, California*. Prepared by CH2M HILL. July 1992a.

\_\_\_\_\_. *Health Effects Assessment Summary Tables*. U.S. EPA Office of Research and Development. Cincinnati, Ohio. 1995a.

\_\_\_\_\_. *Integrated Risk Information System. Chemical Files*. U.S. EPA Integrated Risk Information System Database. Office of Research and Development. Cincinnati, Ohio. 1996a.

\_\_\_\_\_. *National Center for Environmental Assessment*. Office of Research and Development. Cincinnati, Ohio. 1996b.

\_\_\_\_\_. *South El Monte Operable Unit, Final Preliminary Baseline Risk Assessment, San Gabriel Basin, Los Angeles County, California*. Prepared by CH2M HILL. December 1997.

\_\_\_\_\_. *Modifications to EPA's Preferred Alternative for the South El Monte Operable Unit*. Prepared by CH2M HILL. August 2000.



**Table 1**  
**Summary of Chemicals of Concern and Exposure Point Concentrations in Groundwater**  
**South El Monte Operable Unit**

| Production Well or Well Group | Chemical of Concern                 | Frequency of Detection | Mean Concentration (ppb) | Maximum Concentration (ppb) | RME Exposure Point Concentration (ppb) | Statistical Measure |
|-------------------------------|-------------------------------------|------------------------|--------------------------|-----------------------------|--|---------------------|
| Production Well 01900725      | PCE                                 | 8/8                    | 1.4                      | 2                           | 1.6                                    | 95% UCL             |
| Production Well 01900791      | PCE                                 | 1/3                    | 0.4                      | 0.7                         | 0.7                                    | Maximum             |
| Production Well 01900792      | PCE                                 | 3/4                    | 1.4                      | 1.9                         | 1.9                                    | Maximum             |
|                               | TCE                                 | 3/4                    | 0.54                     | 0.7                         | 0.7                                    | Maximum             |
| Production Well 01901694      | PCE                                 | 1/1                    | NA                       | 4                           | 4                                      | Maximum             |
| Production Well 01902612      | PCE                                 | 1/1                    | NA                       | 7                           | 7                                      | Maximum             |
| Production Well 01902664      | PCE                                 | 1/1                    | NA                       | 3                           | 3                                      | Maximum             |
|                               | TCE                                 | 1/1                    | NA                       | 5                           | 5                                      | Maximum             |
| Production Well 01903057      | None of the 8 risk drivers detected | NA                     | NA                       | NA                          | NA                                     | NA                  |
| Production Well 01903081      | PCE                                 | 9/9                    | 0.9                      | 1.3                         | 1.1                                    | 95% UCL             |
| Production Well 08000113      | PCE                                 | 1/3                    | 0.4                      | 0.8                         | 0.8                                    | Maximum             |
| Production Well 31900746      | PCE                                 | 7/8                    | 0.8                      | 1.6                         | 1.1                                    | 95% UCL             |
|                               | TCE                                 | 2/4                    | 1.6                      | 0.6                         | 0.6                                    | Maximum             |
| Production Well 31900747      | PCE                                 | 5/8                    | 0.6                      | 1                           | 0.8                                    | 95% UCL             |
| Production Well 31903103      | PCE                                 | 8/8                    | 1.4                      | 1.7                         | 1.5                                    | 95% UCL             |
|                               | TCE                                 | 1/2                    | 2.0                      | 1.4                         | 1.4                                    | Maximum             |
| Production Well 41900745      | PCE                                 | 7/7                    | 1.9                      | 3.3                         | 2.4                                    | 95% UCL             |
|                               | TCE                                 | 1/7                    | 0.3                      | 0.5                         | 0.4                                    | 95% UCL             |
| Production Well 41902713      | PCE                                 | 5/8                    | 0.4                      | 1.6                         | 0.7                                    | 95% UCL             |
| Well Group 1                  | 1,2-DCA                             | 4/4                    | 6.7                      | 7.1                         | 7.1                                    | 95% UCL             |

| Production Well or Well Group | Chemical of Concern | Frequency of Detection | Mean Concentration (ppb) | Maximum Concentration (ppb) | RME Exposure Point Concentration (ppb) | Statistical Measure |
|-------------------------------|---------------------|------------------------|--------------------------|-----------------------------|--|---------------------|
| Well Group 2                  | Benzene             | 1/16                   | 0.3                      | 1.1                         | 0.4                                    | 95% UCL             |
|                               | PCE                 | 16/16                  | 123                      | 710                         | 196                                    | 95% UCL             |
|                               | TCE                 | 14/16                  | 27                       | 400                         | 70                                     | 95% UCL             |
| Well Group 3                  | Benzene             | 13/52                  | 0.42                     | 2.44                        | 0.66                                   | 95% UCL             |
|                               | 1,2-DCA             | 2/52                   | 0.60                     | 2.78                        | 0.83                                   | 95% UCL             |
|                               | Cis-1,2-DCE         | 24/27                  | 3.76                     | 12.1                        | 4.99                                   | 95% UCL             |
|                               | PCE                 | 47/52                  | 399                      | 8,900                       | 692                                    | 95% UCL             |
|                               | TCE                 | 50/52                  | 95                       | 620                         | 127                                    | 95% UCL             |
|                               | Vinyl Chloride      | 11/52                  | 1.64                     | 18                          | 2.44                                   | 95% UCL             |
| Well Group 4                  | Benzene             | 18/31                  | 134                      | 880                         | 212                                    | 95% UCL             |
|                               | 1,2-DCA             | 13/31                  | 16.2                     | 110                         | 24.5                                   | 95% UCL             |
|                               | Cis-1,2-DCE         | 9/31                   | 2.8                      | 3.2                         | 3.2                                    | Maximum             |
|                               | PCE                 | 14/31                  | 13                       | 42                          | 17                                     | 95% UCL             |
|                               | TCE                 | 18/31                  | 13.9                     | 63                          | 19.7                                   | 95% UCL             |
| Well Group 5                  | 1,2-Dichloroethene  | 3/3                    | 37                       | 98                          | 98                                     | Maximum             |
|                               | PCE                 | 1/3                    | 27                       | 72                          | 72                                     | Maximum             |
|                               | TCE                 | 3/3                    | 46                       | 79                          | 79                                     | Maximum             |
| Well Group 6                  | Benzene             | 1/2                    | 0.5                      | 0.7                         | 0.7                                    | Maximum             |
|                               | 1,2-DCA             | 2/2                    | 2.5                      | 3.8                         | 3.8                                    | Maximum             |
|                               | Cis-1,2-DCE         | 2/2                    | 190                      | 348                         | 348                                    | Maximum             |
|                               | 1,2-DCP             | 1/2                    | 1.8                      | 3.4                         | 3.4                                    | Maximum             |
|                               | PCE                 | 2/2                    | 67                       | 132                         | 132                                    | Maximum             |

| Production Well or Well Group | Chemical of Concern | Frequency of Detection | Mean Concentration (ppb) | Maximum Concentration (ppb) | RME Exposure Point Concentration (ppb) | Statistical Measure |
|-------------------------------|---------------------|------------------------|--------------------------|-----------------------------|--|---------------------|
|                               | TCE                 | 2/2                    | 56.5                     | 99                          | 99                                     | Maximum             |
|                               | Vinyl Chloride      | 2/2                    | 16                       | 29                          | 29                                     | Maximum             |
| Well Group 7                  | 1,2-DCA             | 1/3                    | 5.3                      | 6                           | 6                                      | Maximum             |
|                               | 1,2-DCE             | 1/3                    | 5                        | 5                           | 5                                      | Maximum             |
|                               | PCE                 | 2/3                    | 22                       | 43                          | 43                                     | Maximum             |
|                               | TCE                 | 2/3                    | 16                       | 29                          | 29                                     | Maximum             |
| Well Group 8                  | 1,2-DCA             | 1/16                   | 0.3                      | 0.5                         | 0.3                                    | 95% UCL             |
|                               | Cis-1,2-DCE         | 14/16                  | 9.7                      | 22                          | 13                                     | 95% UCL             |
|                               | PCE                 | 16/16                  | 43                       | 170                         | 67                                     | 95% UCL             |
|                               | TCE                 | 16/16                  | 10.5                     | 23                          | 13.5                                   | 95% UCL             |
|                               | Vinyl Chloride      | 1/16                   | 0.4                      | 0.6                         | 0.5                                    | 95% UCL             |
| Well Group 9                  | Benzene             | 2/17                   | 2.2                      | 0.8                         | 0.8                                    | Maximum             |
|                               | 1,2-DCE             | 2/6                    | 9.2                      | 19                          | 13.7                                   | 95% UCL             |
|                               | Cis-1,2-DCE         | 4/9                    | 1.1                      | 5.4                         | 2.2                                    | 95% UCL             |
|                               | PCE                 | 17/17                  | 171                      | 790                         | 272                                    | 95% UCL             |
|                               | TCE                 | 14/17                  | 18                       | 120                         | 32                                     | 95% UCL             |
| Well Group 10                 | PCE                 | 4/4                    | 155                      | 348                         | 320                                    | 95% UCL             |
|                               | TCE                 | 4/4                    | 6.3                      | 12                          | 11                                     | 95% UCL             |
| Well Group 11                 | Benzene             | 2/3                    | 6                        | 5                           | 5                                      | Maximum             |
|                               | 1,2-DCA             | 1/3                    | 9                        | 11                          | 11                                     | Maximum             |
|                               | 1,2-DCE             | 3/3                    | 1,019                    | 2,800                       | 2,800                                  | Maximum             |
|                               | PCE                 | 3/3                    | 37                       | 78                          | 78                                     | Maximum             |

| Production Well or Well Group | Chemical of Concern | Frequency of Detection | Mean Concentration (ppb) | Maximum Concentration (ppb) | RME Exposure Point Concentration (ppb) | Statistical Measure |
|-------------------------------|---------------------|------------------------|--------------------------|-----------------------------|--|---------------------|
|                               | TCE                 | 3/3                    | 60                       | 110                         | 110                                    | Maximum             |
| Well Group 12                 | PCE                 | 7/7                    | 362                      | 640                         | 482                                    | 95% UCL             |
|                               | TCE                 | 5/7                    | 7.4                      | 8.6                         | 8.6                                    | Maximum             |
| Well Group 13                 | Benzene             | 1/3                    | 1.7                      | 0.2                         | 0.2                                    | Maximum             |
|                               | Cis-1,2-DCE         | 1/2                    | 0.3                      | 0.6                         | 0.6                                    | Maximum             |
|                               | PCE                 | 3/3                    | 260                      | 536                         | 536                                    | Maximum             |
|                               | TCE                 | 3/3                    | 9.1                      | 12.2                        | 12.2                                   | Maximum             |
| Well Group 14                 | 1,2-DCA             | 8/11                   | 1.8                      | 2.7                         | 2.5                                    | 95% UCL             |
|                               | Cis-1,2-DCE         | 1/1                    | 0.4                      | 0.4                         | 0.4                                    | Maximum             |
|                               | PCE                 | 11/11                  | 29                       | 58                          | 38.7                                   | 95% UCL             |
|                               | TCE                 | 11/11                  | 13                       | 32                          | 17.5                                   | 95% UCL             |
| Well Group 15                 | PCE                 | 30/30                  | 220.5                    | 620                         | 268.3                                  | 95% UCL             |
|                               | TCE                 | 3/30                   | 1.1                      | 2                           | 1.6                                    | 95% UCL             |
| Well Group 16                 | Benzene             | 2/6                    | 13                       | 12                          | 12                                     | Maximum             |
|                               | 1,2-DCE             | 4/5                    | 89.4                     | 310                         | 210.1                                  | 95% UCL             |
|                               | 1,2-DCP             | 1/7                    | 12.2                     | 14                          | 14                                     | Maximum             |
|                               | PCE                 | 6/7                    | 14.2                     | 25                          | 21                                     | 95% UCL             |
|                               | TCE                 | 6/7                    | 212.4                    | 760                         | 435.8                                  | 95% UCL             |
| Well Group 17                 | 1,2-DCA             | 4/12                   | 1.0                      | 1.3                         | 1.3                                    | Maximum             |
|                               | Cis-1,2-DCE         | 11/12                  | 9.4                      | 52.1                        | 17.3                                   | 95% UCL             |
|                               | 1,2-DCP             | 1/12                   | 0.8                      | 0.5                         | 0.5                                    | Maximum             |
|                               | PCE                 | 12/12                  | 238.5                    | 480                         | 298                                    | 95% UCL             |

| Production Well or Well Group | Chemical of Concern | Frequency of Detection | Mean Concentration (ppb) | Maximum Concentration (ppb) | RME Exposure Point Concentration (ppb) | Statistical Measure |
|-------------------------------|---------------------|------------------------|--------------------------|-----------------------------|--|---------------------|
|                               | TCE                 | 12/12                  | 24.3                     | 96.2                        | 36.8                                   | 95% UCL             |

Notes:

ND = non-detect

Ppb = parts per billion or  $\mu\text{g/L}$  (micrograms per liter)

95% UCL = 95 per cent upper confidence limit on the arithmetic mean groundwater concentration.

**Table 2**  
**Toxicity Values for Chemicals of Potential Concern**  
**South El Monte Operable Unit**

| Chemical Name  | Systemic Toxicity (mg/kg/day) |                     |   |                           |                     |                            | Carcinogenic Potency (mg/kg/day) |        |                   |        |                         |                     |                                     |
|----------------|-------------------------------|---------------------|---|---------------------------|---------------------|----------------------------|----------------------------------|--------|-------------------|--------|-------------------------|---------------------|-------------------------------------|
|                | Oral Reference Dose           | Source              | Oral Critical Effect                        | Inhalation Reference Dose | Source              | Inhalation Critical Effect | Weight of Evidence <sup>1</sup>  | Source | Oral Slope Factor | Source | Inhalation Slope Factor | Source              | Tumor Site                          |
| Benzene        | 0.0011                        | Route Extrapolation | --  | 0.0017                    | NCEA                | --                         | A                                | IRIS   | 0.029             | IRIS   | 0.029                   | IRIS <sup>3</sup>   | Leukemia                            |
| 1,2-DCA        | 0.01                          | NCEA                | --  | 0.0029                    | NCEA                | --                         | B2                               | IRIS   | 0.091             | IRIS   | 0.091                   | IRIS <sup>3</sup>   | Stomach, Mammary, Lung, Circulatory |
| 1,2-DCE        | 0.006                         | HEAST               | Liver Lesions                               | 0.009                     | Route Extrapolation | --                         | --                               | --     | --                | --     | --                      | --                  | --                                  |
| Cis-1,2-DCE    | 0.0017                        | HEAST               | Blood- decreased hematocrit and hemoglobin  | 0.01                      | Route Extrapolation | --                         | D                                | IRIS   | --                | --     | --                      | --                  | --                                  |
| 1,2-DCP        | 0.0029                        | Route Extrapolation | --  | 0.0011                    | Iris <sup>2</sup>   | Increased nasal mucosa     | B2                               | HEAST  | 0.068             | HEAST  | 0.068                   | Route Extrapolation | Liver                               |
| PCE            | 0.009                         | IRIS                | Hepatotoxicity in mice, weight gain in rats | 0.01                      | Route Extrapolation | --                         | C-B2                             | HEAST  | 0.052             | NCEA   | 0.002                   | NCEA <sup>3</sup>   | Liver, Leukemia                     |
| TCE            | 0.01                          | NCEA                | Liver - Toxicity                            | 0/006                     | Route Extrapolation | -                          | B2                               | HEAST  | 0.011             | NCEA   | 0.006                   | NCEA <sup>3</sup>   | Lungs, Liver                        |
| Vinyl Chloride | --                            | --                  | --  | --                        | --                  | --                         | A                                | HEAST  | 1.9               | HEAST  | 0.3                     | HEAST <sup>3</sup>  | Lungs, Liver                        |

HEAST = Health Effects Assessment Summary Tables (EPA, 1995b)

IRIS = Integrated Risk Information System (EPA, 1996a)

NCEA = National Center for Environmental Assessment (EPA, 1996b)

<sup>1</sup>Weight of Evidence Classification: A is Human Carcinogen; B is Probable Human Carcinogen (B1-limited evidence of carcinogenicity in humans, B2-sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans); C is a Possible Human Carcinogen; D is not classifiable as to Human Carcinogenicity.

<sup>2</sup>Inhalation Reference Dose calculated from unit risk.

<sup>3</sup>Inhalation Slope Factor calculated from unit risk.

**Table 3a**  
**Estimated Total Excess Lifetime Cancer Risk from Potential Current Domestic Use of Groundwater**  
**South El Monte Operable Unit**

| Wells/Well Groups <sup>1</sup> | Average Exposure     |                      |                      |                    | Reasonable Maximum Exposure |                      |                      |                    |                             |
|--------------------------------|----------------------|----------------------|----------------------|--------------------|-----------------------------|----------------------|----------------------|--------------------|-----------------------------|
|                                | Ingestion            | Inhalation           | Dermal               | All Routes         | Ingestion                   | Inhalation           | Dermal               | All Routes         | Major Chemical Contributors |
| 01900725                       | $1.4 \times 10^{-7}$ | $5.3 \times 10^{-9}$ | $1.6 \times 10^{-8}$ | $2 \times 10^{-7}$ | $9.8 \times 10^{-7}$        | $3.8 \times 10^{-8}$ | $1.3 \times 10^{-7}$ | $1 \times 10^{-6}$ | PCE                         |
| 01900791                       | $3.9 \times 10^{-8}$ | $1.5 \times 10^{-9}$ | $4.6 \times 10^{-9}$ | $5 \times 10^{-8}$ | $4.3 \times 10^{-7}$        | $1.6 \times 10^{-8}$ | $5.9 \times 10^{-8}$ | $5 \times 10^{-7}$ |                             |
| 01900792                       | $1.5 \times 10^{-7}$ | $1.1 \times 10^{-8}$ | $1.6 \times 10^{-8}$ | $2 \times 10^{-7}$ | $1.3 \times 10^{-6}$        | $9.4 \times 10^{-8}$ | $1.6 \times 10^{-7}$ | $2 \times 10^{-6}$ | PCE                         |
| 01901694                       | $3.9 \times 10^{-7}$ | $1.5 \times 10^{-8}$ | $4.6 \times 10^{-8}$ | $5 \times 10^{-7}$ | $2.4 \times 10^{-6}$        | $9.4 \times 10^{-8}$ | $3.4 \times 10^{-7}$ | $3 \times 10^{-6}$ | PCE                         |
| 01902664                       | $4.0 \times 10^{-7}$ | $6.8 \times 10^{-8}$ | $3.8 \times 10^{-8}$ | $5 \times 10^{-7}$ | $2.5 \times 10^{-6}$        | $4.2 \times 10^{-7}$ | $2.8 \times 10^{-7}$ | $3 \times 10^{-6}$ | PCE                         |
| 01903057                       | $7.0 \times 10^{-8}$ | $7.0 \times 10^{-8}$ | $3.7 \times 10^{-9}$ | $1 \times 10^{-7}$ | $5.0 \times 10^{-7}$        | $5.0 \times 10^{-7}$ | $3.1 \times 10^{-8}$ | $1 \times 10^{-6}$ | Carbon Tetrachloride        |
| 01903081                       | $1.3 \times 10^{-7}$ | $4.3 \times 10^{-8}$ | $1.2 \times 10^{-8}$ | $2 \times 10^{-7}$ | $1.0 \times 10^{-6}$        | $4.0 \times 10^{-7}$ | $1.2 \times 10^{-7}$ | $2 \times 10^{-6}$ | Carbon Tetrachloride, PCE   |
| 08000113                       | $3.9 \times 10^{-8}$ | $1.5 \times 10^{-9}$ | $4.6 \times 10^{-9}$ | $5 \times 10^{-8}$ | $4.9 \times 10^{-7}$        | $1.9 \times 10^{-8}$ | $6.7 \times 10^{-8}$ | $6 \times 10^{-7}$ |                             |
| 31900746                       | $9.6 \times 10^{-8}$ | $7.1 \times 10^{-8}$ | $9.7 \times 10^{-9}$ | $2 \times 10^{-7}$ | $8.1 \times 10^{-7}$        | $8.3 \times 10^{-7}$ | $9.8 \times 10^{-8}$ | $2 \times 10^{-6}$ | PCE, Chloroform             |
| 31900747                       | $5.9 \times 10^{-8}$ | $2.3 \times 10^{-9}$ | $6.9 \times 10^{-9}$ | $7 \times 10^{-8}$ | $4.9 \times 10^{-7}$        | $1.9 \times 10^{-8}$ | $6.7 \times 10^{-8}$ | $6 \times 10^{-7}$ |                             |
| 31903103                       | $1.7 \times 10^{-7}$ | $2.1 \times 10^{-8}$ | $1.7 \times 10^{-8}$ | $2 \times 10^{-7}$ | $1.1 \times 10^{-6}$        | $1.3 \times 10^{-7}$ | $1.3 \times 10^{-7}$ | $1 \times 10^{-6}$ | PCE                         |
| 41900745                       | $1.9 \times 10^{-7}$ | $1.1 \times 10^{-8}$ | $2.2 \times 10^{-8}$ | $2 \times 10^{-7}$ | $1.5 \times 10^{-6}$        | $8.5 \times 10^{-8}$ | $2.0 \times 10^{-7}$ | $2 \times 10^{-6}$ | PCE                         |
| 41902713                       | $3.9 \times 10^{-8}$ | $1.5 \times 10^{-9}$ | $4.6 \times 10^{-9}$ | $5 \times 10^{-8}$ | $4.3 \times 10^{-7}$        | $1.6 \times 10^{-8}$ | $5.9 \times 10^{-8}$ | $5 \times 10^{-7}$ |                             |

<sup>1</sup> Data from the 13 active production wells were used to evaluate potential current risks in the South El Monte OU area.

**Table 3b**  
**Estimated Total Excess Lifetime Cancer Risk from Potential Future Domestic Use of Groundwater**  
**South El Monte Operable Unit**

| Wells/Well Groups <sup>1</sup> | Average Exposure     |                      |                      |                    | Reasonable Maximum Exposure |                      |                      |                    | Major Chemical Contributors    |
|--------------------------------|----------------------|----------------------|----------------------|--------------------|-----------------------------|----------------------|----------------------|--------------------|--------------------------------|
|                                | Ingestion            | Inhalation           | Dermal               | All Routes         | Ingestion                   | Inhalation           | Dermal               | All Routes         |                                |
| Well Group 1                   | $1.2 \times 10^{-6}$ | $1.2 \times 10^{-6}$ | $1.5 \times 10^{-6}$ | $2 \times 10^{-6}$ | $7.6 \times 10^{-6}$        | $7.6 \times 10^{-6}$ | $1.2 \times 10^{-7}$ | $2 \times 10^{-5}$ | 1,2-DCA                        |
| Well Group 2                   | $1.3 \times 10^{-5}$ | $7.9 \times 10^{-7}$ | $1.4 \times 10^{-6}$ | $1 \times 10^{-5}$ | $1.3 \times 10^{-4}$        | $9.7 \times 10^{-6}$ | $1.7 \times 10^{-5}$ | $2 \times 10^{-4}$ | PCE                            |
| Well Group 3                   | $4.7 \times 10^{-5}$ | $3.9 \times 10^{-6}$ | $4.8 \times 10^{-6}$ | $6 \times 10^{-5}$ | $5.0 \times 10^{-4}$        | $3.7 \times 10^{-5}$ | $6.0 \times 10^{-5}$ | $6 \times 10^{-4}$ | PCE, TCE, VC                   |
| Well Group 4                   | $1.2 \times 10^{-5}$ | $1.1 \times 10^{-5}$ | $5.7 \times 10^{-7}$ | $2 \times 10^{-5}$ | $1.1 \times 10^{-4}$        | $1.0 \times 10^{-4}$ | $6.3 \times 10^{-6}$ | $2 \times 10^{-4}$ | Benzene, PCE, TCE, 1,2-DCA     |
| Well Group 5                   | $3.6 \times 10^{-6}$ | $6.2 \times 10^{-7}$ | $3.5 \times 10^{-7}$ | $5 \times 10^{-6}$ | $5.4 \times 10^{-5}$        | $7.3 \times 10^{-6}$ | $6.5 \times 10^{-6}$ | $7 \times 10^{-5}$ | PCE, TCE                       |
| Well Group 6                   | $6.6 \times 10^{-5}$ | $1.1 \times 10^{-5}$ | $1.8 \times 10^{-6}$ | $8 \times 10^{-5}$ | $7.5 \times 10^{-4}$        | $1.2 \times 10^{-4}$ | $2.5 \times 10^{-5}$ | $9 \times 10^{-4}$ | PCE, TCE, VC, 1,2-DCP, 1,2-DCA |
| Well Group 7                   | $3.4 \times 10^{-6}$ | $1.2 \times 10^{-6}$ | $2.8 \times 10^{-7}$ | $5 \times 10^{-6}$ | $3.6 \times 10^{-5}$        | $9.5 \times 10^{-6}$ | $3.9 \times 10^{-6}$ | $5 \times 10^{-5}$ | PCE, TCE, 1,2-DCA              |
| Well Group 8                   | $5.9 \times 10^{-6}$ | $5.6 \times 10^{-7}$ | $5.3 \times 10^{-7}$ | $7 \times 10^{-6}$ | $5.4 \times 10^{-5}$        | $4.6 \times 10^{-6}$ | $6.0 \times 10^{-6}$ | $6 \times 10^{-5}$ | PCE, TCE, VC                   |
| Well Group 9                   | $1.8 \times 10^{-5}$ | $1.5 \times 10^{-6}$ | $2.0 \times 10^{-6}$ | $2 \times 10^{-5}$ | $1.8 \times 10^{-4}$        | $1.5 \times 10^{-5}$ | $2.3 \times 10^{-5}$ | $2 \times 10^{-4}$ | PCE                            |
| Well Group 10                  | $1.5 \times 10^{-5}$ | $6.6 \times 10^{-7}$ | $1.8 \times 10^{-6}$ | $2 \times 10^{-5}$ | $2.0 \times 10^{-4}$        | $8.3 \times 10^{-6}$ | $2.7 \times 10^{-5}$ | $2 \times 10^{-4}$ | PCE                            |
| Well Group 11                  | $7.0 \times 10^{-6}$ | $2.8 \times 10^{-6}$ | $5.1 \times 10^{-7}$ | $1 \times 10^{-5}$ | $7.8 \times 10^{-5}$        | $2.4 \times 10^{-5}$ | $7.5 \times 10^{-6}$ | $1 \times 10^{-4}$ | PCE, TCE, 1,2-DCA              |
| Well Group 12                  | $3.6 \times 10^{-5}$ | $1.5 \times 10^{-6}$ | $4.1 \times 10^{-6}$ | $4 \times 10^{-5}$ | $3.0 \times 10^{-4}$        | $1.2 \times 10^{-5}$ | $4.1 \times 10^{-5}$ | $3 \times 10^{-4}$ | PCE                            |
| Well Group 13                  | $2.6 \times 10^{-5}$ | $1.1 \times 10^{-6}$ | $3.0 \times 10^{-6}$ | $3 \times 10^{-5}$ | $3.3 \times 10^{-4}$        | $1.4 \times 10^{-5}$ | $4.5 \times 10^{-5}$ | $4 \times 10^{-4}$ | PCE                            |
| Well Group 14                  | $3.5 \times 10^{-6}$ | $7.9 \times 10^{-7}$ | $3.5 \times 10^{-7}$ | $5 \times 10^{-6}$ | $3.0 \times 10^{-5}$        | $7.1 \times 10^{-6}$ | $3.4 \times 10^{-6}$ | $4 \times 10^{-5}$ | PCE                            |
| Well Group 15                  | $2.2 \times 10^{-5}$ | $8.5 \times 10^{-7}$ | $2.5 \times 10^{-6}$ | $3 \times 10^{-5}$ | $1.6 \times 10^{-4}$        | $6.5 \times 10^{-6}$ | $2.3 \times 10^{-5}$ | $2 \times 10^{-4}$ | PCE                            |
| Well Group 16                  | $8.1 \times 10^{-6}$ | $4.7 \times 10^{-6}$ | $4.1 \times 10^{-7}$ | $1 \times 10^{-5}$ | $8.6 \times 10^{-5}$        | $4.7 \times 10^{-5}$ | $4.9 \times 10^{-6}$ | $1 \times 10^{-4}$ | PCE, TCE, 1,2-DCP              |
| Well Group 17                  | $2.4 \times 10^{-5}$ | $1.6 \times 10^{-6}$ | $2.8 \times 10^{-6}$ | $3 \times 10^{-5}$ | $1.9 \times 10^{-4}$        | $1.2 \times 10^{-5}$ | $2.5 \times 10^{-5}$ | $2 \times 10^{-4}$ | PCE                            |

<sup>1</sup> Data from the 17 Well Groups (representing the highly contaminated portions of the South El Monte OU) were used to evaluate potential future risks in the South El Monte OU area.

**Table 4a**  
**Estimated Total Noncancer Hazard Index from Potential Current Domestic Use of Groundwater**  
**South El Monte Operable Unit**

| Wells <sup>1</sup> | Average Exposure |            |         |            | Reasonable Maximum Exposure |            |         |            | Major Chemical Contributors |
|--------------------|------------------|------------|---------|------------|-----------------------------|------------|---------|------------|-----------------------------|
|                    | Ingestion        | Inhalation | Dermal  | All Routes | Ingestion                   | Inhalation | Dermal  | All Routes |                             |
| 01900725           | 0.00214          | 0.00219    | 0.00024 | 0.005      | 0.00455                     | 0.00463    | 0.00061 | 0.010      |                             |
| 01900791           | 0.00059          | 0.00059    | 0.00007 | 0.001      | 0.00192                     | 0.00192    | 0.00026 | 0.004      |                             |
| 01900792           | 0.00338          | 0.00338    | 0.00029 | 0.007      | 0.00840                     | 0.00840    | 0.00087 | 0.02       |                             |
| 01901694           | 0.00587          | 0.00587    | 0.00068 | 0.01       | 0.01096                     | 0.01096    | 0.00151 | 0.02       |                             |
| 01902664           | 0.01664          | 0.01664    | 0.00099 | 0.03       | 0.03105                     | 0.03105    | 0.00218 | 0.06       |                             |
| 01903057           | 0.01468          | 0.01803    | 0.00078 | 0.03       | 0.03131                     | 0.03845    | 0.00198 | 0.07       |                             |
| 01903081           | 0.00971          | 0.01163    | 0.00060 | 0.02       | 0.02650                     | 0.03185    | 0.00190 | 0.06       |                             |
| 08000113           | 0.00059          | 0.00059    | 0.00007 | 0.001      | 0.00219                     | 0.00219    | 0.00030 | 0.005      |                             |
| 31900746           | 0.00323          | 0.00323    | 0.00021 | 0.007      | 0.00795                     | 0.00795    | 0.00060 | 0.02       |                             |
| 31900747           | 0.00088          | 0.00088    | 0.00010 | 0.002      | 0.00219                     | 0.00219    | 0.00030 | 0.005      |                             |
| 31903103           | 0.00548          | 0.00548    | 0.00037 | 0.01       | 0.01050                     | 0.01050    | 0.00086 | 0.02       |                             |
| 41900745           | 0.00352          | 0.00352    | 0.00035 | 0.007      | 0.00840                     | 0.00840    | 0.00099 | 0.02       |                             |
| 41902713           | 0.00059          | 0.00059    | 0.00007 | 0.001      | 0.00192                     | 0.00192    | 0.00026 | 0.004      |                             |

<sup>1</sup> Data from the 13 active production wells were used to evaluate potential current risks in the South El Monte OU area.

**Table 4b**  
**Estimated Total Noncancer Hazard Index from Potential Future Domestic Use of Groundwater**  
**South El Monte Operable Unit**

| Wells <sup>1</sup> | Average Exposure |            |        |            | Reasonable Maximum Exposure |            |        |            | Major Chemical Contributors |
|--------------------|------------------|------------|--------|------------|-----------------------------|------------|--------|------------|-----------------------------|
|                    | Ingestion        | Inhalation | Dermal | All Routes | Ingestion                   | Inhalation | Dermal | All Routes |                             |
| Well Group-1       | 0.0339           | 0.0339     | 0.0004 | 0.07       | 0.671                       | 0.671      | 0.001  | 0.1        |                             |
| Well Group 2       | 0.2496           | 0.2495     | 0.0238 | 0.5        | 0.8638                      | 0.8638     | 0.0893 | 2          | PCE                         |
| Well Group 3       | 0.8565           | 0.8602     | 0.0788 | 2          | 2.5736                      | 2.5832     | 0.2929 | 5          | PCE, TCE                    |
| Well Group 4       | 1.3635           | 1.4074     | 0.0792 | 3          | 4.0191                      | 4.1858     | 0.2790 | 8          | Benzene                     |
| Well Group 5       | 0.2126           | 0.2126     | 0.0113 | 0.4        | 0.8563                      | 0.8563     | 0.0575 | 2          | TCE                         |
| Well Group 6       | 0.5799           | 0.5748     | 0.0252 | 1          | 1.9678                      | 1.9525     | 0.1039 | 4          | Cis-1,2-DCE                 |
| Well Group 7       | 0.1100           | 0.1090     | 0.0059 | 0.2        | 0.3350                      | 0.3313     | 0.0240 | 0.7        |                             |
| Well Group 8       | 0.1069           | 0.1068     | 0.0088 | 0.2        | 0.2897                      | 0.2893     | 0.0295 | 0.6        |                             |
| Well Group 9       | 0.4435           | 0.3412     | 0.0339 | 0.8        | 1.3065                      | 1.0015     | 0.1185 | 2          | PCE                         |
| Well Group 10      | 0.2433           | 0.2432     | 0.0271 | 0.5        | 0.9277                      | 0.9276     | 0.1233 | 2          | PCE                         |
| Well Group 11      | 2.0284           | 2.0846     | 0.0586 | 4          | 9.6574                      | 9.8138     | 0.3170 | 20         | 1,2-DCE, TCE                |
| Well Group 12      | 0.5850           | 0.5852     | 0.0666 | 1          | 1.4799                      | 1.4810     | 0.1954 | 3          | PCE                         |
| Well Group 13      | 0.4072           | 0.4071     | 0.0455 | 0.9        | 1.5316                      | 1.5311     | 0.2055 | 3          | PCE                         |
| Well Group 14      | 0.1302           | 0.1266     | 0.0078 | 0.3        | 0.3407                      | 0.3317     | 0.0237 | 0.7        |                             |
| Well Group 15      | 0.3299           | 0.3293     | 0.0380 | 0.7        | 0.7565                      | 0.7548     | 0.1024 | 2          | PCE                         |
| Well Group 16      | 0.9605           | 0.9580     | 0.0356 | 2          | 3.2491                      | 3.2404     | 0.1401 | 7          | TCE, 1,2-DCE                |
| Well Group 17      | 0.4448           | 0.4441     | 0.0440 | 0.9        | 1.0809                      | 1.0790     | 0.1230 | 2          | PCE                         |

<sup>1</sup> Data from the 17 Well Groups (representing the highly contaminated portions of the South El Monte OU) were used to evaluate potential future risks in the South El Monte OU area.

**Table 5**  
**Cost Comparison of Alternatives**  
**(\$1,000s)**

| Alternative | Capital Costs        |                           | Annual O&M Costs | Net Present Worth<br>(30-years @ 7%) |                           |
|-------------|----------------------|---------------------------|------------------|--------------------------------------|---------------------------|
|             | Using New Facilities | Using Existing Facilities |                  | Using New Facilities                 | Using Existing Facilities |
| 2           | 450                  |                           | 90               | 1,540                                |                           |
| 3           | 5,880                | 3,670                     | 840              | 14,150                               | 11,930                    |
| 4           | 6,290                | 4,080                     | 1,130            | 18,110                               | 15,890                    |

**Table 6**  
**Chemical-Specific ARARs for Chemicals of Concern**

| Compound   | ARAR<br>(ug/L) | Source         |
|--|----------------|----------------|
| Acetone  | -              | -              |
| Benzene  | 1              | California MCL |
| Bromochloromethane   | -              | -              |
| Carbon Disulfide   | -              | -              |
| Carbon Tetrachloride   | 0.5            | California MCL |
| Chlorobenzene  | 70             | California MCL |
| Chloroethane   | -              | -              |
| Chloroform <sup>1</sup>  | 100            | Federal MCL    |
| Chloromethane  | -              | -              |
| 1,2-Dibromomethane   | 0.05           | Federal MCL    |
| 1,4-Dichlorobenzene  | 5              | California MCL |
| 1,1-Dichloroethane   | 5              | California MCL |
| 1,1-Dichloroethene   | 6              | California MCL |
| 1,2-Dichloroethane   | 0.5            | California MCL |
| 1,2-Dichloroethene   | -              | -              |
| cis-1,2-Dichloroethene   | 6              | California MCL |
| trans-1,2-Dichloroethene   | 10             | California MCL |
| 1,2-Dichloropropane  | 5              | Federal MCL    |
| 2,2-Dichloropropane  | -              | -              |
| 1,1-Dichloropropene  | -              | -              |
| 1,3-Dichloropropene  | 0.5            | California MCL |
| Ethylbenzene   | 700            | Federal MCL    |
| Isopropylbenzene   | -              | -              |
| Methyl Ethyl Ketone  | -              | -              |
| Methylene Chloride   | 5              | Federal MCL    |
| Naphthalene  | -              | -              |
| n-Propylbenzene  | -              | -              |
| Styrene  | 100            | Federal MCL    |
| Tetrachloroethene  | 5              | Federal MCL    |
| Toluene  | 150            | California MCL |
| 1,1,2-Trichloro-1,2,2-trifluoroethane  | 1,200          | California MCL |
| 1,1,1-Trichloroethane  | 200            | Federal MCL    |
| 1,1,2-Trichloroethane  | 5              | Federal MCL    |
| Trichloroethene  | 5              | Federal MCL    |
| Trichlorofluoromethane   | 150            | California MCL |
| 1,2,4-Trimethylbenzene   | -              | -              |
| 1,3,5-Trimethylbenzene   | -              | -              |
| Vinyl Chloride   | 0.5            | California MCL |
| Xylenes, Total   | 1,750          | California MCL |
| <sup>1</sup> This chemical is one of the four trihalomethanes (THMs); the MCL listed is for all four THMs combined: chloroform, bromodichloromethane, dibromochloromethane, and bromoform. |                |                |
| Notes: - indicates "no MCL has been established or proposed."  |                |                |

**Table 7**  
**Detailed Costs Estimates for the Selected Remedy**  
**South El Monte OU - Interim ROD**

| <b>Component</b>  | <b>Quantity</b> | <b>Unit</b>               | <b>Unit Cost (\$)</b>   | <b>Cost (\$)</b>                   |
|---|-----------------|---------------------------|-------------------------|------------------------------------|
| <b>Capital Costs (including Engineering and Management)</b> |                 |                           |                         |                                    |
| <b>Capital Costs</b>  |                 |                           |                         |                                    |
| <b>Monitoring</b>   |                 |                           |                         |                                    |
| New MP® monitoring wells                                    | 2               | ea.                       | \$108,900               | \$217,800                          |
| Initial ground water monitoring                             | 1               | ls.                       | \$52,000                | \$52,000                           |
| <b>Monterey Park Module No. 1 (near wells 12 and 15)</b>    |                 |                           |                         |                                    |
| Install and equip. extraction wells                         | 2               | ea.                       | \$229,050               | \$458,100                          |
| Land Acquisition  | 1               | ls.                       | \$125,000               | \$125,000                          |
| Treatment system  | 1               | ls.                       | \$705,600               | \$705,600                          |
| Conveyance piping   | 2               | ls.                       | \$133,500               | \$267,000                          |
| <b>Monterey Park Module No. 2 (near Well 5)</b>             |                 |                           |                         |                                    |
| Install and equip. extraction well                          | 1               | ea.                       | \$226,500               | \$226,500                          |
| Land Acquisition  | 1               | ls.                       | \$125,000               | \$125,000                          |
| Treatment system  | 1               | ls.                       | \$464,700               | \$464,700                          |
| Conveyance piping   | 1               | ls.                       | \$125,000               | \$125,000                          |
| <b>SCWC Module (near wells San Gabriel 1 and 2)</b>         |                 |                           |                         |                                    |
| Install and equip. extraction wells                         | 2               | ea.                       | \$226,500               | \$453,000                          |
| Land Acquisition  | 1               | ls.                       | \$125,000               | \$125,000                          |
| Treatment system  | 1               | ls.                       | \$518,400               | \$518,400                          |
| Conveyance piping   | 1               | ls.                       | \$125,000               | \$125,000                          |
| <b>SGVWC Module (near Plant 8)</b>                          |                 |                           |                         |                                    |
| Install and equip. extraction wells                         | 1               | ea.                       | \$226,500               | \$226,500                          |
| Land Acquisition  | 1               | ls.                       | \$125,000               | \$125,000                          |
| Treatment system  | 1               | ls.                       | \$650,100               | \$650,100                          |
| Conveyance Piping   | 1               | ls.                       | \$125,000               | \$125,000                          |
| Capital Cost Subtotal                                       |                 |                           |                         | \$5,115,000                        |
| Contingencies (15 percent)                                  |                 |                           |                         | \$767,000                          |
| <b>TOTAL ESTIMATED CAPITAL COST</b>                         |                 |                           |                         | <b>\$5,882,000</b>                 |
| <b>Annual Operations &amp; Maintenance Costs</b>            |                 |                           |                         |                                    |
|   | <b>Quantity</b> | <b>Unit Cost</b>          | <b>Annual Cost (\$)</b> | <b>Present Worth Cost (1) (\$)</b> |
| Long-term Ground Water Monitoring                           | 1               | \$85,100                  | \$85,100                | \$1,056,000                        |
| <b>Monterey Park Module No. 1 (Wells 12 and 15)</b>         |                 |                           |                         |                                    |
|   |                 | <i>30 years operation</i> |                         |                                    |
| Treatment system monitoring                                 | 1               | \$40,200                  | \$40,200                | \$499,000                          |
| Remediation system operation                                | 1               | \$146,000                 | \$146,000               | \$1,812,000                        |
| <b>Monterey Park Module No. 2 (Well 5)</b>                  |                 |                           |                         |                                    |
|   |                 | <i>10 years operation</i> |                         |                                    |
| Treatment system monitoring                                 | 1               | \$28,400                  | \$28,400                | \$199,000                          |
| Remediation system operation                                | 1               | \$95,500                  | \$95,500                | \$671,000                          |
| <b>SCWC Module (Wells San Gabriel 1 and 2)</b>              |                 |                           |                         |                                    |
|   |                 | <i>5 years operation</i>  |                         |                                    |
| Treatment system monitoring                                 | 1               | \$32,400                  | \$32,400                | \$133,000                          |
| Remediation system operation                                | 1               | \$109,000                 | \$109,000               | \$447,000                          |
| <b>SGVWC Module (Wells 8B, C and D)</b>                     |                 |                           |                         |                                    |
|   |                 | <i>30 years operation</i> |                         |                                    |
| Treatment system monitoring                                 | 1               | \$43,800                  | \$43,800                | \$544,000                          |
| Remediation system operation                                | 1               | \$147,300                 | \$147,300               | \$1,828,000                        |
| Annual O&M Subtotal:  |                 |                           | \$727,700               | \$7,189,000                        |
| O&M Contingencies (15 percent)(1)                           |                 |                           | \$109,200               | \$1,078,000                        |
| Annual O&M Total:   |                 |                           | \$837,000               |                                    |
| <b>TOTAL DISCOUNTED O&amp;M COST(1)</b>                     |                 |                           |                         | <b>\$8,267,000</b>                 |
| <b>TOTAL CAPITAL COSTS</b>                                  |                 |                           |                         | <b>\$5,882,000</b>                 |
| <b>ESTIMATED PRESENT WORTH COST</b>                         |                 |                           |                         | <b>\$14,149,000</b>                |

**Notes**

(1) Based on 5 to 30-year project and a 7% discount rate.

(2) Net Present Value Factors = 12.409 for 30 years, 7.024 for 10 years, and 4.100 for 5 years.

Capital cost estimates are not discounted because the construction work will be performed in the early stages of the project. O&M costs are reported as present worth estimates given a 7% discount rate for a duration that varies between 5 and 30 years. Cost estimates are based on extraction rates and influent quality estimates that may be refined during remedial design. Cost estimates are expected to be within a +50 to -30% accuracy range.

\*ls. = lump sum; ea. = each

**Figures**

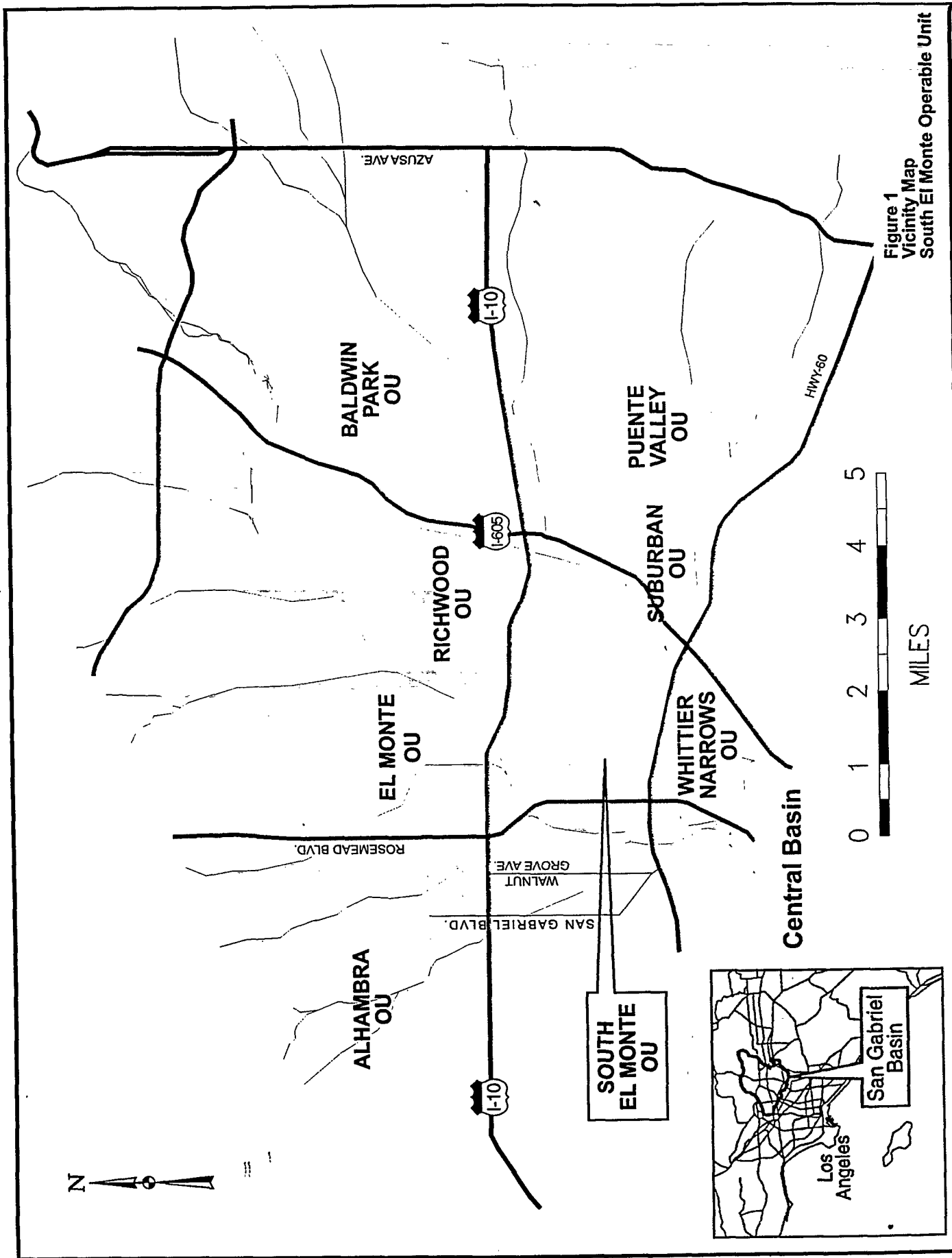
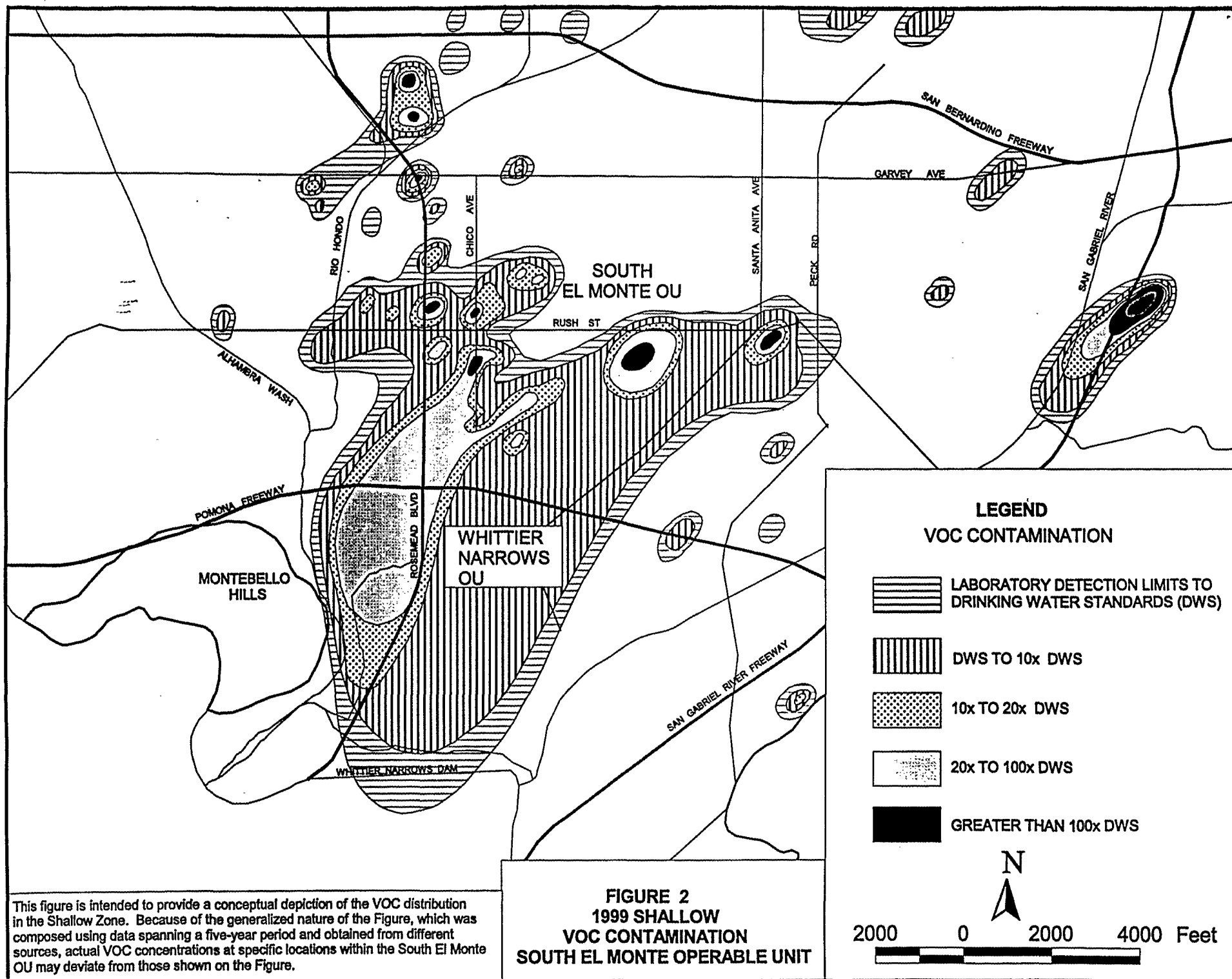
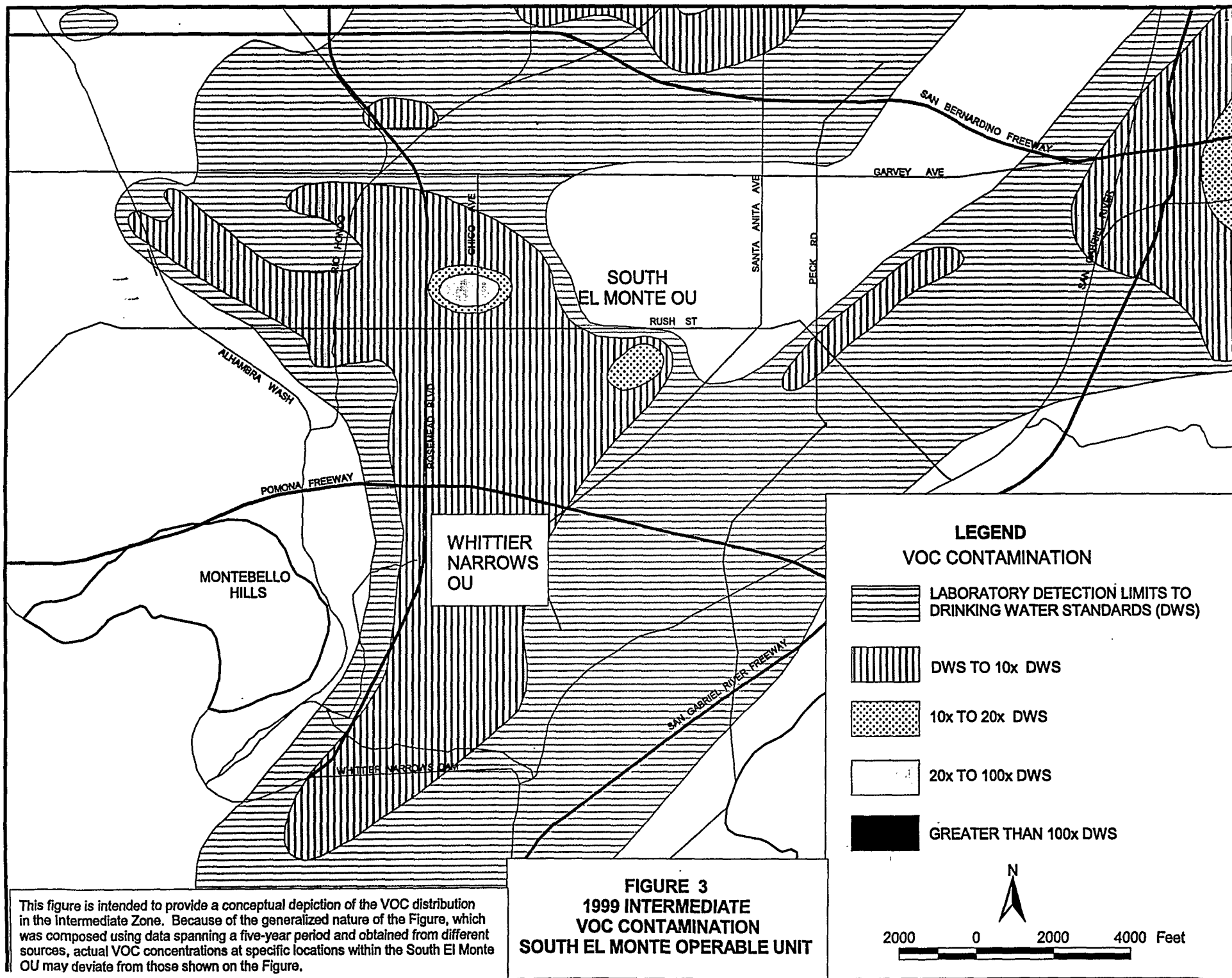





Figure 1  
Vicinity Map  
South El Monte Operable Unit





**Figure 4: Alternative Evaluation Matrix - South El Monte Operable Unit**

| Evaluation Criteria   | <u>Alternative 1</u><br>No action | <u>Alternative 2</u><br>Groundwater monitoring | <u>Alternative 3</u><br><i>Selected Remedy</i><br>Intermediate Zone Control in Western South El Monte OU | <u>Alternative 4</u><br>Intermediate Zone Control in Western South El Monte OU and Shallow Zone Source Control |
|---|-----------------------------------|--|--|--|
| Overall Protectiveness  | ○                                 | ○  | ●  | ●  |
| Compliance with ARARs   | ○                                 | ○  | ●  | ●  |
| Long-term Effectiveness & Permanence  | ○                                 | ◐  | ●  | ●  |
| Implementability  | not applicable                    | ●  | ●  | ●  |
| Short-term Effectiveness  | not applicable                    | ◐  | ●  | ●  |
| Reduction of Toxicity, Mobility or Volume by Treatment  | ○                                 | ○  | ◐  | ●  |
| Capital Cost  | \$0                               | \$0.45 million                                 | \$5.88 million   | \$6.29 million   |
| O&M   | \$0                               | \$0.09 million                                 | \$0.84 million   | \$1.13 million   |
| PWC   | \$0                               | \$1.54 million                                 | \$14.15 million  | \$18.11 million  |
| State Agency Acceptance   | ○                                 | ○  | ●  | ◐  |
| Community Acceptance  | ○                                 | ○  | ●  | ◐  |
|  = High  = Medium  = Low |                                   |  |  |  |

Note: The capital costs of Alternatives 3 and 4 are based on using primarily new production wells and infrastructure. If agreements are reached to use existing water purveyor-owned production wells and infrastructure, the capital costs of Alternatives 3 and 4 could decrease by an estimated \$2,210,000. Annual operations and maintenance (O&M) costs for Alternatives 3 and 4 are based on purveyors using treated water for which they contribute \$45/ac-ft to offset O&M costs. If purveyors do not use the treated water, annual O&M costs for Alternatives 3 and 4 will increase by at least an estimated \$730,000.

O&M = Annual Operations and Maintenance Cost  
PWC = Present Worth Cost: 7% Discount Rate, 30 Years

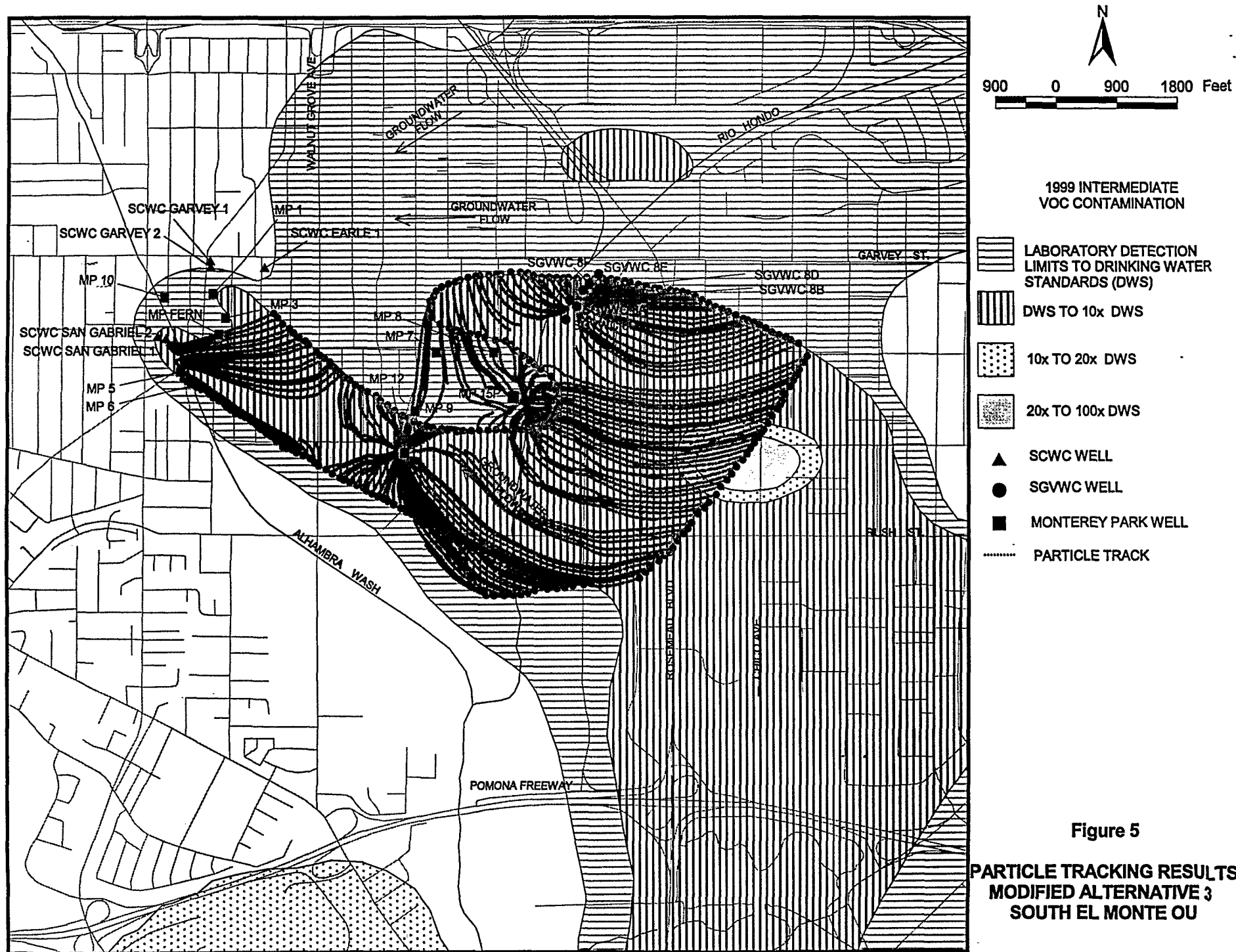


Figure 5  
PARTICLE TRACKING RESULTS  
MODIFIED ALTERNATIVE 3  
SOUTH EL MONTE OU